EDUCATION.

No. IV. — March, 1885.

A NATIONAL UNIVERSITY.

BY REV. A. D. MAYO.

No man is well known until many generations have seen him, each from its own point of observation, and determined from the all-round estimate of gathering ages whether he be indeed a bas-relief on the surface of society, or a colossal statue representing the best human achievment of mankind. The farther we are removed from George Washington, the more evident it becomes that he was one of the world's chief men; so far, the noblest representative of republican manhood on this new continent; beyond all men, held in reverence by the common people round the world.

A new claim to our admiration of the father of our country is found in a review of his life and opinions on the theme which is now so rapidly coming to the front in our national life, — the education of the people. For it is more apparent every day that theology, politics, polite society,—even literature and science,—no longer will dominate the thoughtful American as in time past, but each and all will be regarded as bearing upon this sovereign interest, — the training of American children and youth for citizenship in the new republic. This is no local, narrow, or sectional ideal, since true and complete citizenship, in the American sense, implies the noblest model of manly and womanly discipline, with constant reference to the world's only type of the perfect man. And Washington does not fail us when brought to this test; for no American, in his own manhood, has become a finer example of true education, and through his life he touched on every essential point in the fit training of American childhood and youth.

George Washington was the model American schoolboy. He made the most of the meagre instruction given him in childhood, and graduated at fifteen, after writing a series of school-books, for his own use, in which are anticipated some of the best improvements in that department of literature to day. He became a splendid example of the American self-educated man; the boy who lays hold on everything within his reach, and, by natural methods, grows into complete manhood through the discipline of God's university, — human life. Yet, unlike so many of this style of men, he always held in the highest esteem the most generous training of the schools. He educated two nephews at an expense of $5,000, and was constantly assisting young people in a similar way. He accepted the chancellorship of the old college of William and Mary, with suggestions worthy a profound scholar. In his will he provided that his emancipated slaves should receive instruction in letters and industries. He gave a handsome bequest of several thousand dollars to the Alexandria Academy, which is now included in the public school system of that city. He was the foremost scientific farmer in Virginia, as his correspondence with the celebrated English agriculturist, Arthur Young, declares. With Madison, Monroe, Cabell, and others of the eminent group of great Virginians, he was the firm friend of Jefferson's broad scheme of education, which, had it been adopted, would have changed the history of the republic. And he gave the hundred shares in the James River Company, presented him by his native state, to Liberty Hall Academy, in Rockbridge county, now known as the College of Washington and Lee.

But his favorite educational idea was a national university, to be located in the national capital, under the auspices and supervision of the general government; where, in his own language, American boys could be saved from the perils of a foreign education, in which at that time they could not fail to contract "principles unfriendly to republican government and the genuine liberties of mankind." This university should be complete in its scholastic opportunities; aim to "spread systematic ideas through all parts of this rising empire, and do away with local and state prejudices"; a place "where youths of fortune and talent" might learn "habits of good government, and by associating with each other and forming friendships in juvenile years, be enabled to free themselves in a proper degree from those local prejudices and habitual jealousies which, when carried to excess, are never-failing sources of disquiet to the public mind, and pregnant with mischievous consequences to the country." In 1794 he broached this scheme in a private letter to Edmund Randolph. In 1795 he

addressed a letter to the commissioners of the federal district, outlining his plan, and offering fifty shares in the Potomac Company, valued at $25,000, as his contribution. In the same year he communicated his views to Gov. Brooke of Virginia, with his donation for what he suggested should be a state seminary, tributary to the national university. He did not fully approve Jefferson's notion of transplanting the faculty of the College of Geneva, Switzerland, bodily to this institution, but would select teachers from a broader field. In 1796, in his message to Congress, he urges the point, besides recommending a military academy. In the same year he indicates a site for the university to the commissioners of the district. In his will he made the bequest, accompanied with wise suggestions for his favorite plan

According to the best ideals and the imperative necessities of a century ago, this plan of Washington was one of the greatest thoughts of the New American life. The United States then consisted of thirteen little obstinate British colonies, strung along the Atlantic seaboard, with the population of the present state of New York, and only the old facilities for travel, before the days when the whole world has been gathered as into one household. The vast majority of these people must live and die in the little provincial circle of local prejudice; strangers even in their own state; outside the currents of civilization in the old world. But if the choice young men of the country could be gathered in a national university at the nation's capital they might be trained into a phalanx for republican government, which, like the immortal band of the Macedonian king, could march everywhere and assure the success of the new experiment and of a union founded on the equal rights of man.

But this noble design of Washington has never been realized, partly from the sharp rivalries of states, localities, and religious bodies, jealous of a great central institution that would overshadow them all; these rivalries only multiplied by the vast and unexpected growth of the country. But there are other and larger reasons for the failure. Within the past century the idea of university life and of the higher education has greatly changed. The contents of college life have greatly enlarged. A whole hemisphere of elaborate culture, — to some minds the most important hemisphere, — has been added to the narrow curriculum of classics, mathematics, and philosophy of that day; the varied departments of physical studies, and the industrial, technical, and artisan training developed by applied science and inventive skill; with immense expansion in the realm of history, philology, literature, music, and the fine arts; and, not inferior in im-

portance to any, the science and art of instruction. It is doubtful if any university, however magnificently endowed, even supported by national patronage, could profitably assume the direction of the whole circle of the higher education as understood to-day. This can only be understood by groups of schools, generously endowed, supervised by experts, and, at best, connected with each other by a bond that is little more than an abstract name.

But even this array of schools fails to answer the modern American ideal of education for the sovereign citizen of the world's republic,—a citizenship that summons woman also to equal influence, if not equal suffrage, with man. Within a short time a new president of the United States will take his solemn oath of office,—called to the highest sovereignty on earth by the votes of a thousand men. One vote might have made him president, and that voter would have been more than old Warwick, — not king, but president-maker of the world's chief republic. What an answer is that awful fact to any man who dares to disparage, refuse, or discourage the training of every American! What shall we say of any little class of men,—priests, scholars, scientists, professors of any degree? what of any institution, church, school, social order, even university, that claims the infallible right of educating the American boy and girl? One would think the least university competent to this mighty office were God's own university of human life, where all souls are perpetual learners; whose scheme of culture includes all truth, all goodness, all beauty; whose professors are all powers, influences, and agencies, human and divine; and whose schooling blends time and eternity. Indeed, God's university of human life has always been the only school worthy to train a lofty character, and our so-called systems of education and institutions of learning are valuable only as they find out the divine, natural method of training the young, follow humbly along the path of God's providential discipline, and send forth their pupil, — child, youth, or man, — better able to help himself in the university common to all.

Nowhere in this world has that university of life afforded so large an opportunity for human growth as just here, in our beloved American land. Even a hundred years ago there was no school on this continent big enough to educate George Washington. Harvard in the North, William and Mary in the South, sent forth their graduates, many eminent and worthy. But when the good Lord proposed to fashion a leader of a new people and the Father of that people's union, he made haste to rescue this youth from the schoolmasters and train him through the stern and rich experience of life in a new

world. By journeyings through pathless forests and deadly conflict with savage foes; through the responsibilities of manhood cast upon the shoulders of youth; by the study of all varieties of men that peopled a new country; by serving in every post of duty, from overseer of a farm to chancellor of a college, member of the legislature, and officer in the church; in the thousand indescribable ways by which a gifted youth assimilates truth, garners power, and grows into complete manhood; in all these ways, crowned by humble faith in God and duty and the immortal life, was Washington schooled for the work of his closing years. And surely, in this new century of ours, in these modern days, when man, in comparison to the fathers of the revolution, is almost a supernatural being in his power over nature, his wonderful nearness to his kind, and his influence for good or evil, no influence less broad, varied, and commanding than the new life of the new republic can make any rational pretence to be a university of American citizenship of womanhood or manhood, in our highest sense of those majestic words. So that youth is now best educated, whether by home schooling or studies abroad, who is left by his teachers the most apt scholar for the subtle and all-pervading influence of our best American life. And that place is best where this great influence is most effectively put forth. There, if anywhere, is the true university of the national mind.

By the marvelous providence of our history that place has become the very city to which Washington gave his name, where he proposed to locate the national university, the capital of the new republic. Every large American city has its special merit, and many of them are superior in certain lines of power, culture, and virtue to the city of Washington. But Washington is the only city which is growing to metropolitan dimensions under the sole influence of the national idea. This is the one spot in the Union where no man can safely put on airs of local superiority; where state and sectional pride are of little account; where religious sects and social cliques, and even the sharp distinctions of country and race, all subside in the presence of the majestic nationality which, like a gracious mother, assures to its children the largest freedom, with only the strong compulsion of the love that shall make our people one. So here, if anywhere, must we look for the realization of what Washington saw in vision. Here, if I mistake not, is slowly shaping itself a great metropolitan city, into which shall be gathered, in their finest proportions, the varied influences, agencies, and institutions, and the type of society which alone may assume the name of the nation's university. So it is not the little college of a hundred years ago projected by Washington, but

the city that bears his name, which is appointed as the highest university of American life.

Let us run over, in rapid succession, the circle of these agencies of culture and institutions now existing in this city of Washington. And thus "taking account of stock" at the end of the first century of the nation's life, we may look forward with hope and assurance to the century which is to come.

First: Within the past twenty years, for the first time, has been established in Washington the complete organization of the American people's common school. The common school is now drawing the fire of many sorts of critics, chiefly because it is now becoming evident that it is radically different in its ideal of training and its methods of administration from any European system of popular instruction. The high ecclesiastics call it "Godless"; the narrow scientists and scholars call it "superficial"; great lords of industry call it "shiftless"; exclusive fashion calls it "vulgar"; it is too much for the machine politicians; and all for the same reason, because no one of these sets of people, however illustrious or expert, is permitted to have its exclusive supervision. Unlike the English school, the German school, or any continental scheme of popular training, it does not propose to educate the child for any pre-ordained position in life. It proposes to train every child for the common sphere of sovereign American citizenship, including that discipline of head, heart, and hand which shall best assure the country of a good woman and a good man. This done, it holds that every graduate can be trusted to find his own place in a land where nothing is denied to the least of its children. Such a school can only be supported by the taxation of the people, be kept free to all, supervised by the people, and made the people's true university for common things. And when the people give up this control to the priest, the scientist, the expert, the politician, the professor of any sort,—even the government, municipal, state, or national, — the American common school will cease to be. This school differs from all others, as American life differs from life elsewhere. In a thousand details it is inferior to the carefully guarded schooling abroad. In methods of special training we have much to learn and to appropriate from others; little to copy, but a great deal to assimilate. But in this peculiar American feature we have nothing to learn from abroad, and we shall have much to impart as the years go on.

This school is now established in Washington by the united support of the people of the District and the American people; in all essential respects a model of its kind. It opens its doors to all. It

has gathered a very skillful body of teachers for the most needy race, the most accomplished group of colored teachers in the Union. Its training schools for young teachers of both races are nowhere surpassed. It is wisely superintended by a gentleman of national reputation, and appropriates the generous sum of more than half a million dollars for the instruction of 27,000 children and youth. Its seats are crowded with pupils from the most eminent families of all the states, sitting by the side of children from the humblest homes. Four years ago my advice was asked by a gentleman of culture and eminence respecting the education of his young children. He was thinking of London, Paris, Berlin,—every place. I suggested to him that there was no better spot on earth for the elementary schooling of his young family of American children than the Franklin Public School-house, a stone's throw from his own home in Washington. Already have the common schools of this city taken honorable rank with those of the most cultivated communities in the older states, and to the whole South, now just building up the American system of popular instruction, they are a perpetual model and "object-lesson" of what a public school should be.

But the American system of culture is not confined to the common school. It includes every variety of good institution which any body of good people are willing to support. And in this city we find a complete representation of every sort of private, denominational, and collegiate seminary for all sorts and conditions of youth; colleges with honorable records and growing endowments; the most complete university for colored youth in the country; private, parochial, and academical schools of various grades; the kindergarten for the little ones and the beginnings of that industrial training which is destined to become so great a featnre in the country; schools of law, medicine, and theology; the noble foundation of a gallery, with a prospect of a great school of art. Perhaps the least developed of all is the higher training in music, which still waits the building of a music hall worthy of national fame.

But this excellent beginning of school education is only one of the departments of the national university which our new Washington is becoming. Mr. Matthew Arnold tells us that the tendency of the new university life of Europe is to the location of great schools in great, cultivated cities. Five hundred years, ago the ideal seminary was an educational establishment, in a rural retreat or a wilderness, where a group of scholars and ecclesiastics labored to mould the superior youth of a country to be influential advocates and fanatical partisans of their own creed. But the ideal modern university is a

generous and liberal group of schools, planted in the heart of the most vital community, touching every beneficent institution, and offering to its students the most complete opportunities furnished by the spirit of the age. While, in some respects, the present Washington is doubtless inferior to other large cities of the land in these metropolitan agencies, yet in several of the most important it surpasses them all.

The time has passed when the church or any of its sects will be able to control the education of any large portion of the American people. The present concerted effort of the Catholic priesthood to re-establish the decaying European schools in this country, will either break down through the revolt of the people, or, if it succeeds, the school itself will be captured by the Catholic laity, essentially changed, and made a vital part of the American system of education. But the church, the clergy, and the religious people of every name will not lose their hold on American schools. The ultra-secular education which ignores the whole spiritual side of man is an impossibility. Three fourths of any good school must be moral, — disciplinary of character by the very necessities of the case. And the way to make education religious and moral is for all good people to close up around the school, insist on superior persons for its management, the noblest manhood and womanhood in its teachers, and fill it with the best moral and social influence of the time. And herein the religious public in Washington has this advantage,—that all churches take on the breadth and liberality of thought and growing charity of the national life. Many of them have been built and must be supported by people and denominations representing all states and sections, classes and races. And here will be found, in time, the best development of the people's idea of religion. Even in the days of Washington, the religious people, in many respects, were ahead of their clergy, sects, and churches; and to this fact we owe the religious liberty secured in the very organism of nation and state. The country is growing in this direction, and Washington represents that growth. As time goes on, the organized religious life of this city will become one of the most powerful factors of its educational opportunity.

Time would fail to attempt an elaborate review of the great "annexes" to the school-life of the city of Washington, which especially represent the national spirit and make the capital city the nation's best university. He might speak of the institute of science founded by the Englishman, Smithson, who so early appreciated the position of Washington in the educational life of the new repub-

lic. We have only to look at the vast collections of the national museum and the medical museum, with its choice library, unrivaled in certain ways; with their groups of learned men and women, and the various associations for scientific and literary fellowship for a suggestion of the possibilities in this direction. The botanic gardens, public grounds, and the remarkable development of general ornamentation which is rapidly making this the most beautiful of American cities are, in themselves, no mean feature of a true university life.

Over against this we find the Patent Office, the world's true chamber of magic; better than all seats of learning representing that mighty onward surge of the human mind, which, since the days of Washington, has reconstructed common life, and, more than all the creeds of the theologians, has declared man the divine child of the omnipotent God. The youth who could walk the aisles of that sublime temple of human inventive skill and fitly comprehend the meaning of it all would be educated as few scholars in the proudest cloister can boast.

Every department of the government is really the branch of a great university. The Department of State is incarnate history, girdling the world with its daily message. The Interior includes the most valuable interests in the growth of the country, and the gradual fusing of its millions into a true national life by the magic of modern travel. What memories crowd the soul of the patriotic youth as he walks the corridors of the palaces erected for the Departments of the Army and the Navy. The one master of finance does not live who can fitly appreciate the complete significance of the financial administration of the government for the past five and twenty years, — no one man's scheme, but the finest result of the practical sense and essential honesty of the American people. The cabinet minister who sits in the Post-office Department is like a watcher on an island in a boundless ocean, every wave of which is the pulsation of a human heart. The Department of Justice, with its relations to the Supreme Court, next to the sovereign people the most powerful institution in America, — is another college in the nation's university.

While these great departments fitly represent the entire history of the republic, there are three notable establishments whose development will most fitly signalize the new life of the Union. In 1862 the agricultural division of the Patent Office became the Department of Agriculture. During the past twenty-three years this department has steadily gained upon the people, until the present year finds it including eight separate and most important lines of operation, whose complete working requires the coöperation of an army of agents, all under the supervision of one of the most accomplished public men and

practical farmers in the country. What vision of beauty could be more appropriate to this present time than such a picture as could be drawn in the glowing periods of the eloquent commissioner of agriculture, of our boundless America unfolding at the touch of scientific agriculture, with its teeming fields, solemn forests, bounteous orchards, and blossoming gardens; from that miracle of summer beauty, the New England coast, to the splendor of Texas prairies in April, a poem in crimson green and gold fading into the mysterious horizon; every state and section between two oceans pressing forward in generous rivalry to the front of the majestic display.

And if, as the great Swedish seer and the poet-philosopher of America declare, every appearance in the world of nature is the divine symbol of a corresponding fact in the domain of things spiritual, how appropriate that the same upward movement in public life which gave us the department of agriculture should have also given birth to its counterpart, — the Bureau of Education; itself another child of that fruitful mother, the Department of the Interior; ushered into life by one of the most weighty of the congressional speeches of Garfield; rightly inaugurated under the superintendence of Henry Barnard, the Erasmus of American education; developed into its present commanding position by the one man whom all competent American educators recognize as "the right man in the right place." The Bureau of Education, as time goes on, will more and more arrest the attention of every intelligent patriot. It is no disparagement to any department of the national government to say that the New South is more indebted to this modest Bureau and its devoted Commissioner for the best it is to-day than to all other agencies outside the work of its own superior people of both races and of every class. Nothing will more certainly commend the coming administration to the foremost mind and heart of the country than the most generous appreciation, unpartisan administration, and steady development of this Bureau; every moment of whose history is written in the souls of ten millions of the nation's children and youth.

The third of these new growths of the new republic is, perhaps, in its outcome, destined to an influence more subtle, profound, and far-reaching than all; because it is not a department, is bound by no official chains, and deals only with the immortal spirit of which the nation itself is but a feeble and transitory incarnation. The National Library, at present, like Shakespeare's Ariel, "in the cloven pine," imprisoned in the capitol, is yet the schoolmaster of the proudest statesman within its walls. Under the eye of that most faithful servant of Congress, the librarian, it is now instructing, restraining, in-

spiring every legislator with brain enough to find his way through its mazes and fill himself with the knowledge and wisdom that shall make hin fit to deal with great coming questions of state. It is perhaps of minor importance when this precious collection is fitly housed, except to the member of Congress whose vote against some adequate measure is the most significent test of the quality of his own public manhood. For if anything in Washington is sure of final recognition by the upper side of American life, it is this magnificent collection, destined to become the rival of the greatest libraries in the world. The people will finally demand both for the Bureau of Education and the National Library, the most convenient and attractive structure that the combined wisdom of American architects can devise; where every department of education may be illustrated in a great museum of instruction, and where, beyond the most ample accommodations for official use, the precious treasures now piled in unsightly corners may be opened, with proper restrictions, to the people. Here, at last, will be established a great exchange of mind, corresponding to the broad exchange of social life that centers in the White House. Then will the city of Washington become the place most attractive to the cultivated people of every state, a favorite residence of men of letters as it has long been of eminent men of science. Already does it number among the householders a group of the most distinguished of the cultivated women ot the century; woman journalists, essayists, and writers of romance. The oldest of American historians here crowds his flying years with faithful toil, and hither comes the latest unsuccessful candidate for the presidency to complete that admirable historical record of the past generation, beyond comparison the most valuable book produced by that memorable area in our national affairs.

On the day of President Grant's first inauguration Mr Seward said in my presence, "For the next four years this man will be the most powerful sovereign on the face of the earth." I know tastes differ in regard to the outward pomp and circumstance of sovereignty. But it seems to me that the young man who should first come to Washington, stroll into the morning reception at the White House, and take his turn at the national hand-shake with the gracious gentleman who receives the people in his morning cutaway coat, and should not go away as proud as man could be of a country that can make it possible that its chief ruler and his family should thus deport themselves, would be such a failure that the best use to be made of him would be the sentence to exile abroad, or writing American international novels.

In one of his letters, Washington refers to the great advantage to

the students of a national university from hearing the debates in Congress. Without enlarging on these opportunities, I would only say that, after a life spent in the study of American educational affairs, I should send an inquirer to the full report of last winter's debate on national education in the Senate of the United States as the most suggestive volume on this fruitful theme. As that great debate swept on it became, in truth, the nation's inspired outlook over the mighty revolution from which we have just emerged. Never have the true relations between the Union and the States been more clearly set forth than in the arguments of the most eminent Southern advocates of that great measure in that debate. The wisest appropriation to the Bureau of Education would now be the means of publishing that three weeks' consideration of education in the Senate, edited with ample explanatory information, a copy to be placed in every library in the United States.

The other and most peculiar feature of Washington that makes these vast and varied opportunities the privilege of every visiting or resident youth is the truly American constitution of its social life. The great drawback to education in our older American cities, save to the favored few, is the narrowness of their social affairs. Every winter five thousand young people come to Boston to study in its superior schools, huddle in its lodging rooms, ride in its horse-cars, go to half a dozen expensive concerts, hear an occasional great preachment in church, and go away knowing no more of the cultivated people of the city than if they had studied in a log-cabin at the head-waters of the Missouri; indeed, in every great city in Christendom, the ordinary student crawls into a cell and toils in the narrow world made for him by an order of social life which has not learned that the most precious use of the best society is to hold an open door for every generous boy or girl aspiring to high things. The very feature of Washington society, which awakes the contempt of exclusive circles, is its chief glory; for here alone is realized the true ideal of a republican society, and nowhere in the world can a moderately-intelligent, well-behaved young person, full of a noble desire for self-improvement, meet so many of the foremost people of his own country and foreign lands, with so much satisfaction and profit, as in a winter in the capital of the nation.

The great leaders of the political parties are just now telling us that the questions which for half a century past have torn the country asunder are worn out and drifting to the rear, and that new problems of statesmanship, more subtle, complicated, and far-reaching in their issues, are looking out, like mountain summits, upon the misty political realm ahead. It has taken us a hundred years to finally

make up our minds to live together in peace, and set about the work in earnest of making the United States of America the leading nation of a new continent,—the one people's republic, claiming the reverence of all peoples around the globe. And the one question of American home policy which is now coming to the front, — above currency and tariff, beyond the direction of industries and the supervision of travel; of which civil service reform is only a side-track, — is the training of American children and youth for the American citizenship of the coming century. Of course, this training is the most sacred duty of the home, the church, and the teacher. But no agency, less the representative of the overwatching Providence, than the whole people, doing its broadest and best for the support, encouragement, and supervision of education, will be found adequate to this demand. The schoolman, priest, or social philosopher who would remand American education back to private, family, or sectarian charge has not so much as dreamed of what a true American man or woman should be. The politician who would shut away Congress from the aid and encouragement of the training of the American people may remain the most accomplished of politicians, but will never become a statesman in the national sense of that majestic word. Henceforth, more and more, the test of radical ability in the capitol will be that breadth of mind, abundance of knowledge, and openness of soul, which enables the people's man in his lofty seat to overlook the country, and realize that the need of the humblest child in the republic is the obligation of the loftiest statesmanship in the land. Now that the great statue of liberty, towering above the dome of the national capitol, fronting the rising sun, and the glorious flag of Union streams out from the summit of the Washington Monument, overtopping every work of human hands; now that for a brief season in the deadlock of partisan administration all parties are compelled to hold truce, why should not the nation's fathers in the capitol rise to the comprehension of the people's emergency and give to the one President of the United States who retires with the praise of all men on his lips, the crowning opportunity of his great office,—the privilege of signing a generous, wise, and effective bill for national aid to education. For here is a measure that transcends in importance every subject now before that illustrious body; whose speedy enactment and honest enforcement would bind together the interests of states and the hearts of the people, and challenge the gratitude of generations of children yet unborn.

HISTORIC ILLUSTRATIONS OF SUPERIOR TEACHING.

J. A. REINHART, PH. D., PATERSON, N. J.

III.—ARNOLD AND THE SIXTH FORM AT RUGBY.

Arnold and Rugby! One is tempted to use the words of a different occasion, and exclaim, "What associations are linked in adamant with these names!" In the deed which conveyed the foundation of Rugby School, it was declared to be the will and intent of the founder that his "heires or assignes, or some of them, should cause an honest, discreet, and learned man, being a Master of Arts, to be reteyned to teach a free grammar schoole in the said school howse."[1] Never was the "intent" of any honored founder of an institution of learning better met than in the appointment in 1827 of Dr. Thomas Arnold to the head-mastership of Rugby. The prediction of Dr. Hawkins that if Arnold were thus appointed "he would change the face of education all through the public schools of England," was abundantly justified. Arnold's is the foremost name among English teachers.

But it is not with the general history of Arnold's large influence as a teacher that we are now concerned. To such a task we are not equal. A less ambitious, a more special, aim is ours. To study one phase of his teaching,—his instruction of the sixth or upper form,—the class that came most directly under his influence, and to state some of the general educational and psychologic principles which implicitly constitute its excellence, will be the object of the present paper.

The value of an analytic criticism of a special series of teaching acts may be seen from the following considerations. The study of examples is the true source of accurate and clear knowledge. *Iter est longum per præcepta, breve et efficax per exempla* (Seneca). There is also the consequent increase in the number of general truths to be incorporated in our theory of educational procedure. Further, we perceive new applications of principles previously known, and see more fully what is comprehended in them. For, "theories of method are not to be constructed *a priori*. The laws of our rational faculty, like those of every other natural agency, are only learned by seeing the agent at work. . . . We learn to do a thing in difficult circumstances by attending to the manner in which we [or others] have spontaneously done the same thing in easier ones."[2]

[1] *The Great Schools of England*, page 285. [2] Mill's *System of Logic*, Bk., VI., chap. I

ARNOLD'S TEACHING OF HIS SIXTH FORM.

His Own Account.

I am becoming more and more suspicious of the mere fact system, that would cram with knowledge of particular things and call it information. My own lessons with the Sixth Form are directed now, to the best of my power, to furnishing rules or formulæ for them to work with; *e.g.*, rules to be observed in translation, principles of taste as to the choice of English words, as to the keeping or varying idioms and metaphors, etc.; or in history, rules of evidence, or general forms for the dissection of campaigns, or the estimating the importance of wars, revolutions, etc. This, together with the opening, as it were, the sources of knowledge by telling them where they can find such and such things, and giving them a notion of criticism,—not to swallow things whole, as the scholars of an earlier period too often did,—this is what I am laboring at much more than at giving information.[1]

. . . It is not knowledge, but the means of gaining knowledge, I have to teach.[2]

. . . "You come here," he said, "not to read, but to learn how to read."[3]

The Accounts of Others.

His whole method was founded on the principle of awakening the intellect of every individual boy. Hence it was his practice to teach by questioning. As a general rule, he never gave information, except as a kind of reward for an answer, and often withheld it altogether, or checked himself in the very act of uttering it, from a sense that those whom he was addressing had not sufficient interest or sympathy to entitle them to receive it. His explanations were as short as possible,—enough to dispose of the difficulty, and no more; and his questions were of a kind to call the attention of the boys to the real point of every subject, and to disclose to them the exact boundaries of what they knew or did not know.

In proportion to their advance in the school, he tried to cultivate in them a habit not only of collecting facts, but of expressing them with facility, and of understanding the principles on which their facts rested. "You come here," he said, "not to read, but to learn how to read"; and thus the greater part of his instructions were interwoven with the process of their own minds; there was a continual reference to their thought, an acknowledgment that, so far as their information and power of reasoning could take them, they ought to have an opinion of their own. He was evidently not working for, but with, the form, as if they were equally interested with himself in making out the meaning of the passage before them. His object was to set them right; not by correcting them at once, but either by gradually helping them on to a true answer, or by making the answers of the

[1] Letter to Mr. Sergeant Coleridge, Stanley's *Life and Correspondence of Thomas Arnold*, Vol. I., p. 324.

[2] Stanley's *Life of Arnold*, vol. I., p. 130. [3] *Ibid. I.*, p. 134.

more advanced part of the form serve as a medium through which his instructions might be communicated to the less advanced.

He not only laid great stress on original compositions, but endeavored so to choose the subjects of exercises as to oblige them to read, and lead them to think for themselves. . . . Style, knowledge, correctness or incorrectness of statement or expression, he always disregarded in comparison with indication of promise of real thought. "I call that the best theme," he said, "which shows that the boy has read and thought for himself; that the next best, which shows that he has read several books, and digested what he has read; and the worst, which shows he has followed but one book, and followed that without reflection."

The boys were conscious of (what was indeed implied in his method itself) the absence of display, which made it clear that what he said was to instruct them, not to exhibit his own powers; they could not but be struck at his never concealing difficulties, and always confessing ignorance; acknowledging mistakes in his edition of Thucydides, and in Latin verses, mathematics, or foreign languages; appealing for help or information to boys whom he thought better qualified than himself to give it. . . . The very scantiness with which he occasionally dealt out his knowledge, when not satisfied that the boys could enter into it, whilst it often provoked a half angry feeling of disappointment in those who eagerly treasured up all that he uttered, left an impression that the source from which they drew was unexhausted and unfathomed, and to all that he did say, gave a double value. . . . In the subject of the lessons it was not only the language, but the author and the age, which rose before him; it was not merely a lesson to be got through and explained, but a work which was to be understood, to be condemned or admired.[1]

COMMENTARY.

As to Arnold's own account,— what high aims are these! Evidently here is an ardent disciple of the New Education, of that education which is indeed ever new, but hath been nevertheless of old time. The first general educational principle illustrated in this teaching is one by which not only methods and studies, but teachers also, may be tested. It may be expressed as follows: *The comparative utility of any teaching, any method, and any subject of study, is to be principally estimated, not by the complement of truths of which it puts us in possession, but by the degree in which it determines our higher capacities to action*[2]

Let us consider what is here implied. First, as to teaching. That teaching is most useful, not which aims at acquiring the largest number of truths in arithmetic, grammar, languages, literature, his-

[1] Stanley's *Life of Arnold*, vol. I., pp. 130–135.

[2] Vide *Hamilton's Discussions.*

tory, natural science, or other subjects, but which aims at the greatest play of energetic mental action upon these subjects, and such action also of the highest kind; that is to say, of the greatest number of the higher faculties. A teacher whose proposed end is the habit of easy and rapid acquisition of knowledge must certainly rank lower than one whose aim is the fullest development of both perception and memory; and the last yields, and that easily, to one whose purpose ranges to the higher order of faculties, who insists on the habits of analysis, classification, and generalization, or the constant comparison of sensations, perceptions, ideas, thoughts, words, propositions, and judgments; who thereby aspires to actualize the God-like faculty of Reason. And still higher teaching is that which concerns itself not only with thought, but with sentiment, feeling, and the grounds of volition and action. The life intellectual is much; the moral life, more; the life divine, highest.

As to method, the same argument applies. That method is the best which tends to cultivate the greatest number of the nobler faculties in the highest degree. The application of the principle to subjects of study has been elaborately illustrated by Sir William Hamilton in his argument against the claims of mathematics.

The general principle as stated may be sub-divided. First: Energy is a higher product than knowledge. Mental exercise is more valuable than information; expansion of power, development of faculty, more essential than scholarship. This may be illustrated by many authorities. "Every power," says Aristotle, "exists *only* for the sake of action." "The intellect," says Aquinas, "commences in operation, and in operation it ends." "Neither in point of fact is there any proportion between the possession of truths and the development of the mind in which they are deposited. Every learner in science is now familiar with more truths than Aristotle or Plato ever dreamt of knowing; yet compared with the Stagirite or the Athenian, how few even of our masters of modern science rank higher than intellectual barbarians!"[1]

This last quotation exemplifies the sense in which the term *knowledge* is used in the maxim, "Energy is a higher product than knowledge." Knowledge is the mere possession of truth; energy is the power,—actual or potential,—gained by the free exercise of the faculties. This aspect of the principle is exemplified in Arnold's teaching by the care taken to foster self-activity, and by his resolute refusal to freely give them the knowledge which he had in store. "There is no use, educationally, in telling you the results to which I

[1] Hamilton, *Discussions*.

have come." It is interesting to note, in Stanley's *Life of Arnold*, how often this feature comes out. Compare his maxim, "You come not here to read, but to learn how to read," with his "increasing conviction that 'it was not knowledge, but the means of gaining knowledge which he had to teach.'" Note also that, "as a general rule, he never gave information, except as a kind of reward for an answer, and often withheld it altogether, or checked himself in the very act of uttering it"; and that "his explanations were as short as possible,—enough to dispose of the difficulty, and no more."

The second sub-division of the general principle may be thus expressed: "That teaching is the best which exercises the largest number of faculties, and those of the nobler sort." That the bearing of this principle may be understood, we must consider the logical subordination of the faculties of the mind. Perception, external and internal, memory, recollection, imagination, are called the presentative faculties; they present to the higher faculties, — to the elaborative and regulative powers of the mind, — the materials upon which the latter exercise themselves; that is to say, all the higher powers of comparison, analysis, generalization, and reasoning, have their activity in the products of the activity of the lower presentative powers. There is also to be considered the distinction between *growth* of mind and *development* of mind. "By growth (physical) is to be understood *increase of size;* by development, *increase of structure.* And the law is that great activity in either of these processes involves retardation or arrest of the other. . . . A girl develops in body and mind rapidly, and ceases to grow comparatively early. A boy's bodily and mental development is slower and his growth greater."[2] A more recent writer has a note on this: "When speaking of the physical organism, we distinguish between growth and development. . . . . And an organ as the brain may develop long after it has ceased to grow. It is possible to apply this analogy to mind. We may say the mind grows when it increases its stock of materials; it develops in so far as its materials are elaborated into higher and more complex forms. Mere growth of mind would thus be illustrated by an increase in the bulk of mental retentions; *i. e.*, in the contents of memory; development by the ordering of these contents in their relations of difference and likeness, and so on."[2]

What is meant by the exercise of the largest number of faculties of the higher kind may be shown by the subject-matter of history. This branch of study may be taught (and with much carefulness and

[1] Lewes, quoted by Hoose, *Methods of Teaching*, p. 91.
[2] Sully, *Psychology.*

exactness, too) as an exercise of the presentative powers; *i. e.*, perception, memory, recollection. Imagine, however, another case where there is an interpretative study of the details, with a reconstruction of the whole environment of prominent men, places, and events, and an analytic study of the relative importance of campaigns, revolutions, social changes, etc., and you have an entirely different kind of mental activity, developing and fixing habits of intellection far superior to the former case. This higher form of activity includes such acts as the forming of general notions; *i. e.*, of analysis, classification, and generalization, all of which, according to Sir William Hamilton, are to be rightfully classed under the power of comparison. This doctrine of higher energy, may be compared with the destinction between presentative; *i. e.*, intuitional and representative consciousness, — *thought.* "Thought proper, as distinguished from other facts of conciousness, may be adequately described as the *act* of knowing or judging of things by means of *concepts;*" [1] *i. e.*, general terms. But there are higher forms of mental exercise than those that are purely intellectual. There is the whole range of feeling, including sentiment, taste, moral quality, likes and dislikes, the passions generally. As a great authority remarks, without an appeal to the feelings, what can education accomplish? Education has to do with knowledge, it is true, but with knowledge as a *means.* "Knowledge is only precious as it may afford a stimulus to the exercise of our powers and the condition of their more complete activity." The main duty of the instructor is not simply "to communicate knowledge, but to do this in such a manner, and with such an accompaniment of subsidary means, that the information he conveys may be the means of awakening his pupils to a vigorous and varied exertion of their faculties." [2]

The exemplification of the general principle so far discussed may be seen in Dr. Arnold's declaration that his lessons with the Sixth Form were "directed to the best of his power to the furnishing rules or formulæ for them to work with; *e. g.*, rules for translation and principles of taste; in history, rules of evidence, and general forms for the dissection of campaigns, and for estimating the importance of wars, revolutions, etc. This is the practical phase of the maxim, "not to read, but *how* to read"; "not knowledge, but the means of gaining knowledge." It is the school-master assuming Locke's field and teaching the "Conduct of the Understanding." Compare, further, "his opening the sources of knowledge by telling them where such and such things may be found, and giving them a notion of

[1] Mansel, Fleming's *Voc. of Philos.*, art. "Thought and Thinking."
[2] Hamilton, *Metaphysics*, Lect. I.

criticism,—not to swallow things whole, as the scholars of an earlier period too often did." "In original compositions," says Stanley, "style, knowledge, correctness or incorrectness of statement or expression, he always disregarded in comparison with *indication or promise of real thought.*" "I call that the best theme which shows that the boy has read and thought for himself; that the next best, which shows that he has read several books and digested what he has read; and that the *worst*, which shows that he has followed but one book, and followed that without reflection." "Ha! very good," was his well-known exclamation of pleasure when he met with some original thought; "is that entirely your own, or do you remember anything in your reading that suggested it to you?" Consider also his teaching them that "so far as their information and power of reasoning could take them *they ought to have an opinion of their own.*" Each author read was "*a work to be understood, to be condemned, or to be admired*"; and that in proportion to their advance in the school, he tried to cultivate in them the habit not only of collecting facts, but of expressing themselves with facility, and of *understanding the principles on which their facts rested.* Finally, "all the lessons, in his eyes, and not only those which were more distinctly religious, *were invested with a moral character.*" "He often dwelt on 'the fruit which he above all things longed for,—moral thoughtfulness; the inquiring love of truth going along with devoted love of goodness.'"[1] Is there in the whole catalogue of special lines of education, of specific instances of good teaching, a finer example of that teaching which nobly exercises the best powers of our nature, which tends to justify the remark of Kant that "behind education lies hid the great secret of the perfection of human nature"?[2]

The second general educational principle illustrated in Arnold's teaching of the Sixth Form may be thus expressed: *The teacher must, in the act of instruction, be cognizant of the mental state of the learner,—must be conscious of the learner's consciousness.* There is a genesis of knowledge in the individual, and there is a progressive advance toward the perfection of knowledge and energy. His particular state at the moment of teaching is the stand-point conditioning what he may next think, feel, or will. Says Aquinas: "*Omnis disciplina fit ex pre-existenti cognitione.*" All teaching must proceed from that which is within, and that only in the largest sense, but in particular matters also. "It would be impossible for us to learn of a man the knowledge which he wishes to teach us, if there were not in us beforehand those principles to which he connects his knowledge;"

[1] Stanley's *Life*, vol. I., p. 127. [2] Barnard's *German Pedagogy*, p. 16.

and "all teaching supposes in him who learns some anterior knowledge."[1] "True knowledge is to be elecited from within," says Socrates, and calls himself a mid-wife of the mind. He assisted in bringing to the birth truths with which the mind was big and in labor. "He unfolded what was infolded." All these quotations imply a practical didactic insight into the consciousness of the learner. "The teacher must rest satisfied with nothing less than the evolution of thought; he must learn carefully to distinguish between the semblance and the reality of actual thinking."[2] Knowledge has its qualities. "Every act of consciousness proper," according to M. Chastel, "must possess in some degree the attributes of *clearness* and *distinctness*. An act of consciousness, whether presentative or representative, is *clear* when its object as a whole can be distinguished from any other; when this can not be done it is *obscure*. An act of consciousness is distinct when the several parts constituting its obtect can be distinguished from each other; when this cannot be done ij is indistinct."[3] These distinctions make clear what qualities of knowledge we desire to see in the mind of the learner. But there is another distinction of great importance; that is to say, between the *form* and the *matter* of knowledge as held by the learner. When the learner's attention is directed to any object, he does not see the object itself, but contemplates it in the light of his own prior conceptions. "A rich man, for example, is regarded by the poor and ignorant under the *form* of a very fortunate person, able to purchase luxuries above their reach; by the religious mind, under the form of a person with more than ordinary temptations to contend with; by the political economist, under that of an example of the unequal distribution of wealth; by the tradesman, under that of one whose patronage is desirable. . . . The *form*, then, in this view, is the mode of knowing; and the matter is the perception, or object, we have to know."[4] "The drift or meaning of a branch of knowledge varies with the company in which it is introduced to the student. . . . It is not so much this study or that as it is the setting into other studies that moulds the impression";[5] that is, all knowledge is inevitably cemented with the prior conceptions of the learner, and moulded by them. "The teacher is to note but the *form* and the *matter* of knowledge which the learner acquires, whether it stand in his mind correct in its impression and true in its essence. To secure these ends requires the consummate skill of the teacher."

[1] Aquinas, *De Magistre*, according to M. Chastel, in *Voc. of Philos.*, p. 442.
[2] Thomas Morrison, in *Barnara's Object Teaching*, p. 303.
[3] Mansel, *Philos. of Consciousness*, p. 46. [4] Thompson's *Laws of Thought.*
[5] Cardinal Newman, *Idea of a University*, p. 100, quoted by Hoose.

So much for the elucidation of the principle. Its dominating influence is seen in Arnold's teaching, in that "the greater part of his instructions were interwoven with the process of their (the students') minds; there was a continual reference to their own thoughts. . . . He was evidently working not for, but *with* the form." This is the animus of his questioning, — to awaken the intelligence of every individual boy, to disclose,—to chain,—the *exact boundaries* of what he knew or did not know; to dispel the haze of indistinctness as to a consciousness of his own knowledge or ignorance; to raise every perception into the realm of a clear consciousness. The principle is also seen in the special means taken to emphasize the importance of not mistaking a vague impression for a definite one, and an imperfect notion for one that is full and complete, and must also have been implied in his not setting them right by correcting them at once, but gradually helping on to a true answer, making the answers of the more advanced part of the class serve as the medium for the instruction of the less advanced, as also in "the courtesy and almost deference to the boys as to his equals in society, so long as there was nothing to disturb the friendliness of their relation"; as well as in his declaration that if he "did not judge of his pupils or expect of them as he should, if he were not taking pains to improve his own mind."

The principle we have just discussed, that the teacher must constantly aim to attain a lively consciousness of the learner's mental state, is the one the neglect of which develops what is called "mechanical teaching"; *i. e.*, the use and application of methods without discerning their psychologic relations to the learner's mind, and without perception of either the actual or possible results. To such teaching there could be no stronger contrast than Dr. Arnold's; his biographer confesses his inability to represent his principles of education distinct from himself, — "the system is lost in the man"; the head-master of Rugby becomes inseparable from the personal guide and friend of his scholars.

THE COURSE OF STUDY IN PRINCETON COLLEGE.[1]

BY JAMES MCCOSH.

The success of a college depends, under God, mainly on the excellence of its curriculum or course of study and on the efficacy of its teachers. On this occasion I am to call the attention of the governing body of our college to the former, simply remarking as to the other, that our instructors, forty-one in number, are competent to carry out our system. The report bears solely on the Academic Department. At a future time I mean to summarize the branches taught in the School of Science.

In my inaugural address on my being appointed president of the college, and in all my recommendations since, I have kept it steadily in view to have the curriculum arranged on philosophical principles, so as to make it comprehensive and useful, more particularly in training the minds of the young men committed to our care The course of study is now approaching the ideal which I have all along set before me. This has been accomplished by the encouragement given by the Board of Trustees, by the counsel and action of the Faculty, and by the large gifts, amounting in all to between two and three millions of dollars, bestowed by our liberal benefactors.

Keeping steadily in view, first the cultivation of the minds of our students, and secondly the preparation of them for the spheres which they expect to fill in this world, I find that our branches of study have fallen into three departments, — Language and Literature, Science, and Philosophy. I hold that every well-educated youth should have instruction in each of these to a certain extent, being allowed throughout, if he wishes, to give special attention to certain branches under these heads. Without some acquaintance with at least the principles in each of these, the mind will not be properly balanced, and its ideas will so far be contracted and become one-sided and prejudiced.

I hold that every branch of true learning should have a place in a thoroughly-equipped college. But as life is short, and young men differ in taste and capacity, it is not desirable, — in fact, it is not

[1] The article herein presented is the substance of the report made to the trustees of Princeton College, Nov. 1884.

possible,— to exact a deep knowledge of every kind of useful scholarship from every young man. So in all our higher colleges the studies are now divided into required and elective, the former being enjoined on all, and the latter provided for those who have a taste for them, or who may look upon them as fitted to prepare them for their future employments in life. In past ages there were few or no choices of studies allowed in colleges, European or American, and this because the branches of true learning were so limited that a student could so far master them. But now they have become very numerous, and our colleges are seeking to take them all in, so far as their means admit, while they do not, and cannot, require every student to take the whole. I regard the proper distribution of the studies, required and elective, as about the most important point to be settled in our colleges at this present time.

Some (not many) of the American colleges are seeking to draw students by giving them, younger as well as older, an almost unlimited choice of subjects through all the years of their course. This in my opinion is a fundamental mistake. Every one acquainted with college secrets knows that there are students who show uncommon skill in choosing among the electives the subjects which require the least expenditure of thought and attention; and that professors are tempted to give high grading-marks without exacting rigid study. I met not long ago with a student of a distinguished college who, in his senior year, was contenting himself with taking two branches of epochal history, with art and music! When such a state of things is allowed and encouraged, I hold that the education given, so far from being an advance upon that given to our fathers, is a retrogression, as in the older colleges they required a solid knowledge of higher branches, — which is true, I may add, of some of our smaller colleges at this day. I hold that there are branches, rudimentary and fundamental, which have stood the test of time, fitted to call forth the deeper and higher faculties of the mind, and openiug the way to farther knowledge, which all should be required to study. Such in Language are the classical tongues, with certain European ones, and above all, our own tongue; all of these with their literatures. Such in Science are mathematics, physics, chemistry, and certain branches of natural history. Such in Philosophy are the study of the human mind (pyschology), logic, ethics, and political economy. A young man is not liberally educated who has been allowed to omit any of these; and certain of them should be required in every year of the course to keep the mind from being dissipated and wasted.

I.— DEPARTMENT OF LANGUAGE AND LITERATURE.

Language is a native faculty early developed. It has an important place allotted to it in the first two years in our course, and in the shape of elective studies runs through the whole four years. It is by words, by speech and books we get our earliest knowledge; they put us at once into possession of the analyses and generalizations of things which have been made in the ages, and which have been embodied in the phrases of a cultivated tongue. Prose and poetry in various languages open to us the thoughts, fancies, and feelings of earth's greatest men.

In our colleges we retain the ancient classical languages, and we require such a knowledge of them on the part of all as may enable them to read an ordinary passage of the great writers of Greece and Rome. Our faculty are happily unanimous (the scientific being as determined as the literary men) in insisting that Greek be required of those who seek the bachelor's degree. They thus insist, as they consider Greek to be the noblest language of antiquity, as furnishing an admirable training for the mind, as opening to us a literature which has never been surpassed, and the tongue in which God has been pleased to make known the full revelation of His will in regard to His own nature and the duties we owe to him and our fellow-men. If our colleges systematically discard the Latin and Greek, the whole ancient world, with its thoughts and deeds, will remain very much unkown even to our educated men, and our knowledge would be narrowed to the last few ages in the history of our world.

But in the three or four years' preparatory courses, and in the four years' college course, there is time not only for classics, but a fair knowledge of French and German to enable our young men to travel in the old countries, and to throw open the rich treasures of prose and poetry to be found in these tongues. But much as we may appreciate other languages, we should set the highest value on our own. We give English an influential place in our college. We have three professors giving instruction in it. We do not confine it to one year, but make it run through all the years. Our students are all taught in the principles of grammar and discourse, and have a critical acquaintance with all our great English authors. We endeavor to keep up the old name of Princeton for statesmanlike oratory. We require carefully-written and carefully-examined written compositions every year in the course. While these branches are required of all, we have several others which are elective, and are taken by those who are pursuing higher linguistic studies, such as Anglo-Saxon by those who wish to pursue the development of our

own tongue, and Sanscrit, useful to those who are going as missionaries to India. We have a learned professor combining all these by instruction in comparative languages.

In Greek we have three professors, in Latin, two professors and a tutor; in Modern Languages we have two professors, and mean to have a third; and in English we have three professors; in all, twelve in Language and Literature.

II. — DEPARTMENT OF SCIENCE.

Some in the present day are insisting that college education should now be mainly scientific. But this would be a fatal mistake, as it would leave the larger number of our mental faculties uncultivated, such as the imagination, the fancy, the sentiments, so fitted to refine and elevate the understanding even in its scientific pursuits. On the other hand, science should have a large place in all higher education, as disclosing facts to us, as bringing us into relation with realities and preparing us for practical work. The intellectual faculties which God has given us are cultivated by the contemplation of the works which He has set before us.

We have a larger number of instructors in this department than in either of the other two. This is required by the rapid advance, of late years, of all branches of science. We wish to keep up the reputation which was given to our college by such men as Henry, Dod, Alexander, and Guyot. We have younger men following in their footsteps.

We set a great value on mathematics, pure and applied, as fitted to give concentration and coherency to thought, and employed so powerfully as an instrument in various departments of physical science. All students have not a relish for this branch; but even those who have no taste for it should be introduced to its methods. Of late we have had instruction provided in the new and advanced mathematics in quaternions, quantics, theory of functions, and elliptic integrals. We have teachers who give instruction to a few of our students in these departments.

The old sciences of physics, chemistry, and astronomy are thoroughly taught in this college, with all the discoveries and advances that have been made of late years. In practical astronomy and electricity, the professors with their students are engaged in original research of the highest order. In connection with these we have a very full set of modern instruments and one of the large telescopes of the world.

One of the fondest wishes that I have is to establish in the college

a school of natural science in the widest sense of the term. Already we have gathered round us a body of young men eager to advance their several departments, and well acquainted with the recent discoveries in Europe and America. Original observation and experiments are made in various departments of biology,—in some respects the rising science of the day. Every two years a body of our students make explorations, during the three months of the summer vacation, in the western states, in botany and palaeontology, and they bring home what they collect to enrich our two fine museums, the zoölogical and geological, which have already very extensive collections. In the elective classes, valuable instruction is given in physical geography and the use of the microscope. We have in all eighteen instructors in science.

III. — DEPARTMENT OF PHILOSOPHY.

This embraces those branches which call forth and exercise reflective thought. They are fitted above others to widen and enlarge the mind, to give acumen and comprehensiveness, as they inquire into first principles and the causes and connections of things. Princeton has always attached a great importance to these, and I hope it will continue to do so. It has at the present time seven professors in this department.

Much attention is given to the study of the human mind (psychology), and to logic, both deductive and inductive, as unfolding the laws of thinking and the methods of pursuing various kinds of investigation. The principles of ethics, both theoretical and practical, are profoundly discussed. The interesting and vital questions involved in the relation of religion and science, are expounded and illustrated. Jurisprudence and political economy are taught to all students, as they ought to be in a country like ours, where the government is virtually in the hands of the people.

All these are required. Other and important branches are elective. Thus we have the history of philosophy, treating the mental sciences historically, metaphysics, and physiological psychology. We have constitutional and international law, especially useful to those who are to follow law or enter into political life. A certain amount of historical knowledge is required of all students, and nearly all our professors give the histories of their own departments of study. The professor of history gives elaborate lectures on the philosophy and methods of history and the science of politics. We have lately established a department of art and appointed two accomplished professors. We have arranged the studies of these three departments in an order suited to the age of the student.

In the FRESHMAN YEAR, Latin, Greek, Mathematics, French, Rhetoric with essays, are taught to the class divided into four sections.

In the SOPHOMORE YEAR, advanced Latin, Greek, Mathematics, and Rhetoric, with Modern Languages, elementary General History and Natural History.

In the JUNIOR YEAR there are,—

Required Studies. — Psychology, Logic, Physics, English Literature, and Oratory.

Elective Studies. — Philosophy of History, Greek, Latin, Modern Languages, Anglo-Saxon, Mathematics, Physical Geography.

Every student is required to take three of these electives.

In the SENIOR YEAR: *Required Studies.* — Science and Religion, Ethics, Jurisprudence and Political Economy, Chemistry, Astronomy, Geology, English, Essays, and Oratory.

Elective Studies. — *In Philosophy:* History of Philosophy, Metaphysics, Physiological Psychology, Science and Religion, Comparative Politics, International and Constitutional Law, History of Art. *In Literature:* English Literature, Greek, Latin, French, German, Sanscrit. *In Science:* Mathematics, Practical Astronomy, Physics, Applied Chemistry, Biology, or Palæontology, Histology.

Students are required to take four subjects in the first term, and four or five in the second and third terms, of these elective studies. Some of these electives occupy only one term, others run over the whole year.

We wish it to be understood that we do not profess, in the Academical Department, directly to fit young men for trades and professions. We aim at what we are competent to accomplish, — to sharpen and enlarge the mind of those committed to our care, and give them varied knowledge; and then allow them to acquire practical skill in professional schools and offices, in shops and farms and factories.

But we arrange to give instruction in branches specially designed and fitted to prepare young men for work in the various walks of life. We do not make ministers of religion, but we give those intended for the ministry high instruction in Greek, and in various departments of philosophy, to prepare them for the profounder study of theology. We had better not try to license physicians and surgeons; but we give a scientific instruction in physiology, anatomy, chemistry, botany, and zoölogy, to furnish a scientific basis to a medical education. We do not profess to train for business; but we give wide and varied information, which enable our youth to take advantage of openings

in trade as they present themselves. We may not be able to fit men to become farmers; but we teach chemistry and natural history, which will advance the agriculture of our country. It is beyond our province to teach law; but by discussions in logic and philosophy we sharpen the intellect. We give instruction in all branches of social science, and this is fitted to raise a body of intelligent and enlightened lawyers. We give instruction to prepare our students for teaching the highest branches in schools and colleges, and the number of young men devoting themselves to this work is increasing.

It is proper to mention that we have seven or eight fellowships, earned by competition, which demand high scholarship in certain branches, and secure that those who receive them devote a certain time after graduation to special study and research. A professor in our college has provided a chair for us in the United States Marine laboratory in Massachusetts. A considerable body of graduates, in all about seventy, are taking advanced courses fitted to prepare them for the higher walks of life, as ministers of religion, as teachers and scientific investigators.

I much not omit to state that every student receives religious instruction once a week in classes, taught by six or seven professors whose hearts are in their work, and who conduct the young men through large portions of Scripture.

ART IN SCHOOLS.[1]

BY ARCHDEACON FARRAR, D.D.

The whole country is awaking rapidly to a recognition of the problems which lie before us in the growth of our great cities. The awakenment is not coming a day too soon. I have long been convinced that nothing but the torpor of familiarity on the one hand, on the other an immoral selfishness of heart, can cause any man to view with indifference, or even with acquiescence, the ugliness and squalor of our great cities, or can blind us to the evils which must result from the constant growth of such conditions. Long ago, Cobbett, in his disgust at the condition of London, called it "a great wen." The wen has become an enormous tumor; in parts, even a dangerous imposthume; and towns, as huge as London was in Cobbett's time, and much more dirty, have now sprung up all over the country. The last census revealed the startling fact that the whole sweet rural life of England is more and more rapidly diminishing; that young men are flocking into cities in increasing numbers; that our towns already contain half, and may soon comprise two-thirds, of our population; in one word, that while the country is undergoing a depletion, our towns are in danger of plethora. Now a physician recently told us that great cities are the graves of the *physique* of our race. That is a serious consideration; but it is a yet more solemn thought that the *physique* of a race is closely connected with its *morale;* that health and morals act and react upon each other; that "if you rumple the jerkin, you rumple the jerkin's lining." A race pale, weakly, stunted, miserable, will be the inevitable outcome of a race distracted, in childhood by over-pressure, in youth by spurious excitement, in manhood by grinding struggle, in old age by a miserable dependence on public charity. In proportion to the peril of a disorder is the value of each little element of cure. Let me, then, touch for a moment on the physical conditions of our English towns, and afterward on the moral consequences, the social and national dangers, which those conditions inevitably involve.

1. No one can be unaware of the dreary dullness which reigns

[1] Delivered at the London Institution, Nov. 1884. (From *Journal of Education*, London.)

over whole regions of most great English towns. Speaking of London eighty years ago, Coleridge sings,—

> "I was reared
> In the great city, pent 'mid cloisters dim,
> And saw naught lovely but the sky and stars."

We can hardly say even that much now without a reservation. In Westminster I fear that the days on which we can see the sky as God meant us to see it, — a sky of the "sweet color of the Eastern sapphire," bathed in the pure serenity of air, — are few indeed. We breathe an atmosphere eternally contaminated by smoke and fog, which clog the leaves of every tree, and actually blacken the lungs of permanent residents. Never, as long as I live, shall I forget the Christmas-day of 1882. London was covered, all day long, with a pall of grimy and intolerable midnight, rendered yet more frightful by gleams of a ghastly and lurid yellow. It was a day which seemed to have come straight out of Dante's *Inferno*, and it rested on the spirits like the smoke of the abyss. A large proportion of Englishmen do not know what it is to see a perfectly azure heaven, or more of sunset than they can catch a glimpse of through the tops of smoky chimneys. And then consider the state of our streets! Nothing, surely, but necessity could make human beings content to live all their lives in such acres ot dreary brick-work as Wapping and Hoxton and Stepney and Whitechapel, and similar regions in all our manufacturing towns. Many of us reside in such places, first, because we must; next, because we grow indifferent to their dreariness; lastly, because we live in the hope, often frustrated, of escaping from them at the earliest opportunity. This accounts for the centripetal force which drives tens of thousands into town every morning, and the centrifugal force which drives them out again every evening. This systole and diastole of the throbbing heart of London is caused by the attempt at partial escape from smoke and dirt. But it has its dangers. The rich and the poor are no longer close neighbors. The manufacturer no longer has his home among his "hands." Two worlds live in all but total ignorance of each other's methods of life. Not thousands, but tens of thousands of families, consisting of members of both sexes and all ages, — "misery's sons and daughters, and the multitude that are ready to perish," — live huddled together in single rooms under conditions in which delicacy and decency seem to be impossible. Masses of the poor are crowded, swept, crushed together in heaps, which I dare not characterize by the terrific epithet which a great writer has applied to them, but which

has given to the English language the new and hideous names of "slums" and "rookeries." Clergymen know something of such rooms; their pestilential atmosphere; the offensive furniture; the foul surroundings; the walls spotted and ringstreaked with perpetual leprosy; every breath of heaven's air rigidly excluded, even if heaven's air were to be had. These are the "homes," — if one dare give such a sacred name to the dens and lairs of human misery, — in which myriads of English children, endowed with as much humanity and as full of eternity as the children of a palace, are suffered to grow up or to die!

2. And what are the consequences?

The causes and the consequences, inextricably interfused with each other, like the creatures, half-human, half-serpent, which Dante saw in the seventh chasm, are Drink, Disease, Degradation. The Huns and Vandals who shall wreck the prosperity and the institutions of England are being trained, — as we have been warned, — not on the steppes of Asia, but in the streets of towns. And we must not suppose for a moment that these consequences are confined to the immediate victims. The typhus or scarlatina or small-pox, which lurks in some horrible court, may be conveyed to far other regions by the dress, or the uniform which the district visitor sees being made in an infected room, or giving warmth to a bed where the sick are lying. These blind alleys, poverty-stricken amidst wealth, criminal in defiance of law, dehumanized in spite of civilization and of Christianity, are the hot-beds of the harlot, the felon, and the drunkard, who are to England her heaviest burden and her most deadly curse. They will be, as Prof. Huxley has said, the great Serbonian bog of our future civilization. The rector of a parish of 20,000 poor people in the East of London told me that, when he considered the hopelessness and wretchedness of the lives they lived, he felt certain that some terrible revolution must, sooner or later, come. If 1884 forgets the terrific lessons of 1792 and of 1848 and of 1871, the mountain which has begun already to mutter may some day burst, and "the thin, blue smoke," which now rises as from a narrow fissure, may, to borrow the image of a great orator, become a river of fire, and "the bellowing thunder of a volcano which shall shake the world."

Now, this being so, it is the duty of every good man and of every sincere patriot to do everything he can, great or small, to remedy conditions which are fraught with individual ruin and national disaster. The effort which the Association of Art for Schools is making is a small one, but it is an effort in the right direction, and

will co-operate with thousands of other beneficent endeavors to alleviate if not to remove; to delay, if not wholly to avert. For one element, undoubtedly, in the grim tragi-comedy of which I have spoken, — a comedy with no humor in its grotesqueness, a tragedy with no dignity in its pathos, — is the increasingly abnormal nature of the conditions of city life for all of us, but most of all for the poor. It is useless to say, with the poets, that

> "God the first garden made, and the first city, Cain";

or,—

> "God made the country, and man made the town."

Life in great cities is, and always has been, an inevitable necessity of the growth of civilization. Nevertheless, it is our duty, and all the more our duty, to restore, to the utmost of our power, the balance which we have destroyed in the conditions of life with which God meant us to be blessed. I rejoice, therefore, that it has occurred to some kindly and thoughtful persons to provide elementary schools, not only with works of art, but also with plants and flowers. One of the most pathetic, — one of the most powerful appeals which God has addressed to us is that which comes to us from the beauty which He has lavished upon the world. It is the very autograph of love. Without necessary things we could not, of course, have lived at all; but with these necessary things God has, as it were, thrown in the not necessary but infinitely blessed element of beauty. Consider the beauty of water, — that pure crystal, that perfect diamond of God, — in every undefiled form of it; in the mist upon the mountain-side; in the rivulet which bubbles up amidst moss and fern; in the majestic river; in the inviolate sea; in the dew upon the grass; in the snowy clouds which catch a gleam of crimson in the evening sky. Consider the beauty of light: light is needful to us, but the infinite loveliness and diversity of color, — the hues of the rich unfolding dawn, the blue sky, the green earth, the splendor of the dove's neck and the peacock's plume, the sevenfold perfection of the rainbow's arch,—these are a gratuitous gift of God. Consider vegetation: the commonest of trees, the commonest of flowers,—

> "The great elm-tree, in the open, posed
> Placidly, full in front, smooth bole, broad branch,
> And leafage, one green plentitude of May.
> O yon exceeding beauty! bosomful
> Of lights and shades, murmurs and silences,
> Sun warmth, dew coolness, squirrel, bee, and bird,
> High, higher, highest! till the blue proclaims
> Leave earth; there's nothing better till next step
> Heavenward."

The rich could hardly render to the poor in cities a simpler act of kindness than by supplying with flowers the schools of their children. Even wild flowers plucked from the lavish prodigality of beauty on woodland banks, primroses, and daffodils,—

> "That come before the swallow comes, and take
> The winds of March with beauty,"

might preach to our little city Arabs such "Sermons on the Mount" as they have never heard before.

3. Before I proceed any further, let me give some very simple illustrations of the influences of things beautiful alike on pure and impure, alike on noble and ignoble souls. Kingsley tells us how once, in the streets of London, he stopped to look at a cage of humming-birds in the shop of a naturalist. "I was gloating," he says, "over the beauty of these feathered jewels, and then wondering what was the meaning, what was the use of it all; why those exquisite little creatures should have been hidden for ages in all their splendor of ruby and emerald and gold in the South American forests, breeding and fluttering and dying; that some dozen out of all those millions should be brought over here to astonish the eyes of men. And as I asked myself why were all these boundless varieties, these treasures of unseen beauty created, I 'turned to share the joy.' Next to me stood a huge, brawny coal-heaver, in his shovel hat and white stockings and highlows, gazing at the humming-birds as earnestly as myself. As I turned, he turned, and I saw a bright manly face and soot-grimed forehead, from under which a pair of keen, flashing eyes gleamed wondering, smiling sympathy into mine. In that moment we felt ourselves friends. We only looked half a minute at each other, with a delightful feeling of understanding each other, and then burst out both at once with, 'Isn't that beautiful!' 'Well, that is!' And then both turned back again to stare at our humming-birds."

Again, a friend of mine tells how a boy, whom he knew, was observed to make a point of always procuring a flower every day, not to wear in his button-hole by way of personal adornment, but in order to lay it beside him on the city desk at which he worked. He never even told his father why he did it. He did it as a help against temptation. Unimaginative persons might have said to him with a sneer, "that God was no more present in the flower than in the desk on which it stood"; but, nevertheless, he found that the flower did speak pure and sweet thoughts to him. It reminded him of the sacred and august presence which compassed his path. It helped him to bear the strain to which he was exposed.

Or, again, consider the influence of external objects on minds very different from these. One day, not long ago, the warder of Millbank Prison found one of the most abandoned women ever committed to his care leaning her face upon her hands and weeping in some great sorrow. It was found that she was pressing to her cheeks a white blossom, such as bloomed every summer beneath the window of her home, in days when she had been an innocent child. That flower recalled,—what perhaps nothing else could have recalled, —to her conscience the fatal loss entailed by an evil life. Once more, take Charles Reade's description of a group of rough Australian diggers, wrapped into tender and human emotions as they listened open-mouthed to the song of a lark, which reminded them of the days when they had heard that song as white-headed boys in the sweet lanes of England, before life's pillar of fire had turned to them its dark and stormy side. These instances, I think, will prove that, in things of beauty there is, for all minds, if not "a joy forever," yet at least a very potent, and even, at certain crises, a very regenerative spell.

4. Now set by the side of these proofs of happy influence the anecdote told by one of our inspectors of schools. A young lady was giving a lesson before him on "The Bee" to a class of children at Ancoats, and the tears stood in her eyes to find that the children only seemed to get blanker and duller as she proceeded. The inspector interposed, and found out the reason of their total want of interest in an interesting lesson. It was because these children had never seen a bee, and had no idea what it was like, or where it might be found. Never seen a bee! Perhaps you may ask, "What does it matter whether the children had ever seen a bee or not?" Well, only consider all that it implies; the immense loss of sympathy with some of the sweetest facts of nature, which have been known to man ever since man was. Even Homer had watched the

> *Ἔθνεα πολλὰ μελλισάων ἀδινάων*
> *Πετρῆς ἐκ γλαφυρῆς αἰεὶ νεὸν ἐρχομενάων,*

the dense swarms of bees as they flew out of their hives in the hollow rock, or hung in grapelike clusters on the blossoms of the spring. Even Æschylus sings with delight,—

> *Τῆς ἀνθεμουργοῦ στάγμα, παμφαὲς μέλι,*

"the gleaming honey-drop of the golden bee." As for modern poetry, it is full of the

> "Murmur of innumerable bees."

Read the delicious lines of Keats,—

> "'Mid boughs encradled, where the deer's swift leap
> Startles the wild bee from the foxglove's bell";

Or Tennyson's,—

> "For now the noonday quiet holds the hill;
> The grasshopper is silent in the grass;
> The purple flowers droop; the golden bee
> Is lily-cradled."

Thirty years ago I read some lines by some unknown poet, which I remember still:

> "Beautiful, O woman, the sun on flower and tree,
> And beautiful the balmy wind that dreameth on the sea,
> And beautiful the hushing of the linnet on her nest,
> With her young beneath her wings and the sunlight on her breast;
> White hid among the flowers, where the drowsy bee is flitting,
> Singing unto its own glad heart the village child is sitting."

Even amid the gloom of London there sometimes flashes upon "that inward eye which is the bliss of solitude" a privet hedge in my garden at Marlborough, behind which were some bee-hives, and under their stand I had planted a quantity of borage. To see the hundreds of bright blue flowers, with myriads of bees buzzing and reveling among them in the summer noon, was a sight never to be forgotten. And imagine the surroundings of children who have never even seen a bee! A little girl in Sheffield was sent a message, the other day, to a village two miles off, and, until that day, she had never seen the lambs in the fields. What do such facts mean? They mean that thousands of town children have lived lives entirely ignorant of the lavish splendors with which God has adorned our earthly dwelling-place. Not for these are His fantasies of balm and bloom in the summer meadows. Not for these does His grass grow upon the mountains, and green herb for the use of men.

5. All the more, therefore, should it be our duty to teach them, as far as we can, by means of Art, what nature looks like, and what nature means; to provide them, for the loss of natural beauty, with such compensations as Art can give. For when a man, from childhood upwards, has been wholly deprived of these, when he hears little but what is debasing, and sees nothing but what is ugly and squalid, what can we expect of him? A true human being cannot be brought up in a sty. Finding no refuge anywhere from the meanness and ugliness of life, he will pass from the dull sty to the unlovely street, and from the bad street to the maddening gin-shop.

6. You will perhaps object that even in the country, where the poorer classes are surrounded by all nature's prodigal loveliness, — where man can see the apple-blossom, and hear the lark sing, and stand on moors intertwined with gold and purple by the gorse and heather,—that there, too, we find drink and degradation. It is true. There are shadows and storm-clouds even over Arcady. Nor is the reason far to seek. Amiel, in his remarkable "*Journal intime*," hearing a company of rustics howling disagreeable songs on a balmy summer evening, under the starlit sky, and insulting the grandeur of solitary and tranquil night with this effrontery of grossness, attributed it to the sad and secret instinct which all men have of asserting themselves at all costs, and so confronting all nature with an egotism which flatters their lowest and coarsest pride. But this echo of Satan,—this self-assertion of the ape and the tiger in human nature, the basilisk and the adder in the human heart, — is but a distortion of the free will which is our noblest privilege, and beauty is one of the elements by which the free will may be trained into subjection to the eternal laws of God.

7. Yet, on the other hand, the country is, as a rule, morally sweeter by far than the slums of our great towns. The child who can wander by the willows and primroses on the banks of such English streams as we have not poisoned with the scum of our manufactures; children who look into the birds'-nests with their blue eggs among the fragrant hay; children whose tread has been on the yellow sands of the shore or on the mountain sod, are infinitely the gainers by the sights and sounds in the midst of which they have grown up. Except where drink has scorched up their happiness also with its demon finger, the squalor of country villages is less revolting, the crime is rarer, and less intolerably vile.

8. But we desire to see works of art introduced into country schools also; and here several thoughts suggest themselves, which are of great importance for our subject.

The first is that our country children, no less than our town children, suffer, because in them also the regenerating and ennobling instinct of beauty is left uncultivated. They are not rightly trained to see or to admire. When Prof. Henslow went to take charge of a dull and lonely country parish, he said that, but for the continual interest of botany, he might have gone mad or committed suicide. He began to initiate the village children into the elements of botany. The result was remarkable. The village girls and boys increased in intelligence, and it was found that the girls were so useful in awakening the interests of other children in rural sights and sounds that

nursemaids from that village were sought for far and wide. The nation has of late years developed a most laudable zeal in the cause of education. I do hope that the education may not become too burdensome, too artificial or mechanical, too heavy a load upon the memory, too total a neglect of the imagination. I do trust that it may not multiply what has been called "the plague of fermenting imbecility, striving to make for itself what it calls a position in life." The whole Education Department might well take to heart the remark that "education does not mean teaching people to know what they do not know,—it means teaching them to behave as they do not behave. It is not teaching the youth of England the shapes of letters and the tricks of numbers, and then leaving them to turn their arithmetic to roguery and their literature to lust. It is, on the contrary, training them to the perfect exercise and kingly continence of their bodies and souls, — by kindness, by watching, by warning, by precept, and by praise, — but, above all, by example." I have long ago, and often, expressed my opinion that the education of Englishmen of all classes, high and low, is in danger of being ruined and paralyzed by the plague-spot of competition, the dry rot of artificiality, the mandarinat of incessant and wearying examinations.

Next, even in country schools art is necessary as an interpreter of nature. Plato dismisses painters from his ideal republic, because he says they only make copies of external things, which are themselves but copies of the ideal; that is, of the eternal realities and archetypes. This was a misconception of art altogether. The great artist has a far loftier aim than the mere copying of the external. His art, if it be merely imitative of surface, becomes essentially second rate. His aim is, through the sensible object, to give us the inmost idea. "Art," it has been said, "is a perfected nature, which conceives of unity beneath variety; of the general within the particular; the moral within the physical; the absolute within the relative; and which strives to reproduce the object of the conception, but by means of forms more faithfnl." In one word, "Art is the representation of the ideal." It does not imitate, — it interprets. It enables men to penetrate through the squalid to the idea which is dormant in it. The great artist teaches us to see, what to see, and how to see. He sees the infinite in things, and expresses it in the form of beauty. He enables us to observe, through the medium of his own genius, that which to our own mediocrity might otherwise have been commonplace. He shows us, as Mr. Browning truly says,

> "The beauty, and the wonder, and the power,
> The shapes of things, their colors, lights, and shades,
> Changes, surprises, — and God made them all."

9. Here, then, we have arrived step by step at one point, — the great, the national importance of trying to educate the noblest side of the nature of our children, and of teaching them, — that is, of developing their best natures, — by means of good art. Intelligent children in cities may and do learn something from the education of the shop-windows; but, unhappily, this education, since it leaves them the helpless victims of bad art, does as much harm as good. Untrained minds, and minds perverted by familiarity with exclusive ugliness, will probably admire just the wrong things, if we do not educate them by the right ones. In shop-windows, if they see occasionally a good picture or a lovely water-color, they also see pictures irredeemably vulgar and hopelessly meretricious. Of photographs and prints, which grossly offend against modesty, I will say nothing, but harm may be done by some which are ostensibly harmless. There is one very popular print in shop-windows of late, which seems to me quite demoralizing in its subtle suggestion of baseness. It represent two French ecclesiastics, one of whom, with a sheepish face, has evidently been telling some dubious anecdote to the other, who is leaning back in his chair with an explosion of wicked laughter; and the motto (if I remember rightly) is, "Did she?" or something equally suggestive. The print is to me an embodiment of the tendencies which take form in the moral frivolity and cankering atheism of France. But coarser, if not lower, depths of vulgarism are common. For thirty years I have seen some odious pictures which first disgusted me in the room of an undergraduate, and which I never pass without a sensation of loathing. When one sees college rooms adorned with pugilists, jockeys, and ballet-girls, we see a frank confession of the tastes and calibre of the owner; but even pictures of ballet-girls are not so low as these. One is called "Bon Vin," and represents an abominable monk patting his stomach as he ogles a glass of drink; the other is, if possible, a still more dehumanized monk gloating over an oyster which he holds with both hands. The person who produced these monstrosities deserves a place, if not with Ciacco, in the Stygian slime of the *Inferno*, at least in the purgatorial circle of gluttony and drunkenness. Conceive the effect upon a man's mind of only seeing such pictures as these upon his walls! "Hang this upon your walls," said a wise Oxford print-seller to an Oxford undergraduate, as he showed him an etching of an old master, "and the race-horses and opera beauties will disappear from them"; and, to the great benefit of that undergraduate, they did disappear. Supposing that a youth had one or two good reproductions of Fra Angelico's angels, do you think that he could hang

them by the side of the horses of the turf, or the dancing and posing vilenesses of the *demi-monde?* But, if my remarks about the danger and the prevalence of bad art needed any demonstration, I think that they are illustrated in massive proportions by the advertisements which deface our railway stations and the walls and boardings of our towns with acres of hideousness. We are fretted with miles of odious and obtrusive puffery. One would think that the main object of English life was to study the merits of Cadbury's Cocoa, Colman's Mustard, and, above all, Pear's Soap. This is a wholesale vulgarization of the nation's taste. I always see with indignation the corner house opposite our Houses of Parliament. It is plastered over, windows and all, with glaring theatrical placards, and some are as brutal and vulgar as can possibly be conceived. The English nation has spent tens of thousands of pounds upon that noble site. There are our Houses of Parliament, Westminster Hall, and Westminster Abby, and we allow the whole square to be irredeemably spoilt and degraded by the one object, which from every point of view most prominently catches the eye. It is an eating-house, covered with obtrusive representations of vulgarity and violence, where tawdry yellow strives with dirty red.

10. My conclusion, then, is that the decoration, with good pictures and engravings, of our Board and National Schools, — a thing which the slightest local effort might everywhere effect at very small cost, — would have an influence decisively and beneficently educational; especially if, as I assume, they are occasionally explained by the teachers. Nor is it any matter of *à priori* conjecture that such objects may train the minds of some children in a genuine and wholesome sense of beauty, and exercise upon the minds of others an influence still more special and decided. Let me try to show you, first, that we have the highest authority for the theory, and then that it is thoroughly ratified by actual experience. In defence of the theory, I will refer you to the greatest poem ever written, the *Divina Commedia* of Dante. Notice how, from the precints of the *Inferno*, he excludes everything which has in it a single redeeming touch of beauty. Notice his instinctive sense that there is an impassable chasm between the Infernal and the Beautiful. There you have foul rain, murky gloom, the red-hot pinnacles of the city of Dis, burning tombs silent and awful, scorching sand, rivers that leap into the abyss "in a Niagara of blood"; you have the petrifying Medusa, the wallowing Minotaur, the indecent fiends, the loathly Gorgon, the ghastly wood of the suicides, on whose gnarled bows sit the obscene harpies of despair and misery, the hideous distortions, the human

serpentry, Lucifer, with his black, yellow, and vermilion face, and his frozen, tufted, bat-like wings. Dante seems to have felt instinctively that even one lovely thing in those regions would imply a redeeming touch of that mercy which mediæval theology compelled him wholly to exclude. And, therefore, when his poem requires the presence of an angel, he will not allow the ghastliness and squalor to be even for a moment banished or relieved. The angel himself seems to be half transformed by the horrid medium through which he moves. He is not radiant and affable, but full of disgust and indignation. The ruined spirits fly before him like frogs before the water-serpent, and with his left hand he moves from his face the gross air of the abyss. He does not so much as notice the two poets; to the fiends he speaks only a few words of concentrated scorn, and then speeds away disdainful in a moment. Compare this with the angels of the Purgatory, in their radiant beneficence, with their swan-like wings and dazzling faces and fair hair and emerald robes, breathing immortal fragrance, and speaking in words of love; or with the spiritual splendors, the living rubies and topazes of the Paradise. Nor is this all; for in the Purgatorio the speaking sculptures on the marble floor of the Terrace of Pride are used by Dante, as expressing the strongest and most blessed remedial agencies. He uses art for the awakenment of sin-tainted, though not yet sin-ruined, souls.

I pass from theory to practical experience. There are scores of memorable instances in which the whole future destiny of children has been swayed for life by the objects of art which they have seen around them. Vauban, the great engineer, attributed the mechanical bent of his genius to the fact that, as a child, he used to be shut up in a room which contained no single object except a clock. The destiny of Chatterton was decided by the old muniment room and mouldering documents of St. Mary's, Redcliffe. Turner's genius was fired by the accidental familiarity with a very ordinary picture. Darwin tells us that his bent for traveling had been decided by the picture of a tropical plant. Mr. Ruskin has somewhere attributed his art faculty to the circumstance that, as a child, having no plaything but a bunch of keys, he spent hours in tracing out the patterns on the carpet. It is mentioned in President Garfield's life that the wife of a farmer, far in the country, being astonished that her boys, one after the other, developed a passion for going to sea, the explanation was given when some one pointed to the picture of a ship at full sail which hung over the chimney-piece of the room with which they were most familiar. We know, too, of actual schools where the

children have shown themselves sensible to the influence of pictures on their school-room walls. The other day a kind-hearted lady invited to her house some of the children from Whitechapel. They soon began to talk freely to her, and one of the confidences was: "We've such a beautiful picture in our school; it's all about the sea!" Mr. Ruskin tells us that not long ago he gave to a school in a fishing village a copy, of little value, of an angel of Fra Angelico, which he had bought out of charity of an Italian artist. Nothing could exceed the delight and gratitude of all connected with the school. It seemed to the children like a glimpse of Paradise.

11. I do not think, then, that I exaggerate when I say that such pictures may, — especially in the hands of wise teachers, — have an educational value of the highest order. I think that Tennyson felt this when he wrote his "Princess," and shows how carefully Ida filled her college full of all rich memorials, so that the eyes of the girl-graduates might be daily and hourly familiarized with deeds and examples of pure and noble womanhood:

> . . . . "She
> That taught the Sabine how to rule,
> The foundress of the Babylonian wall,
> The Carian Artemisia strong in war,
> The Rhodope that built the Pyramid,
> Clelia, Cornelia, with the Palmyrene
> That fought Aurelian, and the Roman brows
> Of Agrippina."

I dare say that there is hardly one of us who cannot recall some picture which has exercised, at some time or other, an intense effect upon himself. Sometimes it is a mere wood-cut. I remember one of a monk, his head covered with a cowl, kneeling at the foot of a cross, which haunted me for weeks. The whole career of Count Zinzendorf was influenced by an *Ecce Homo* in the gallery of Düsseldorf. Dürer's engraving of "The Knight and Death" inspired La Motte Fouquè's admirable story of "Sintram and His Companions." An old piece of tapestry stirred in Mr. Browning the thoughts which find such immortal utterance in his "Childe Roland to the dark tower came." Could there be a finer sermon on the unsatisfying effect of all human knowledge, apart from divine wisdom, than Dürer's marvelous "Melancholia"? Was there ever a more thoughtful comment on "Behold! I stand at the door and knock," than Holman Hunt's *Light of the World?* If you want to impress a youth with the duty of making a resolute choice, not of pleasure, but of virtue, might he not be inspired by Raphael's picture of the

"Knight's Dream"? Or, if you wanted to assure him of the certain victory of those who fight against corruption, could he see a grander allegory of it than in Turner's *Apollo and the Python*, — the beautiful sun-god, in his radiant circle of light, slaying the huge, hideous, envenomed monster, which bursts asunder in the midst under the arrows of the dawn? Once more,—not to weary you,—take the last picture acquired by the National Gallery, and attributed to Velasquez. It represents a little child, brought by his guardian angel to behold and to seek the help and blessing of the Redeemer, who has been scourged and is soon to be crucified. Half-seated, half-lying on the ground, faint and mangled, He is fast bound; He cannot move, yet He turns His face and reaches as far as the cords will let Him to the little child, as if he would stretch out His arm to him and embrace him, only His arms are tied. He is helpless to help the helpless. And the child, shocked at the spectacle, half shrinks and half worships. The peculiarity of the picture is this, — that it is at once the most repelling and the most fascinating picture in the collection. There is not in the whole canvas a gleam of beauty, and yet so deep and true and awful is the parable of human life which it presents that no one who has seen it can ever forget it. For, underlying all this picture of helpless and hopeless suffering, there is the pathetic reality of our helplessness and of our hope, our pathetic insignificance, and the reality of all that was done to help us. That picture represents, in a way that art has rarely equaled, the humiliation which preluded the victory of the Lord of Life and Death, who is the Brother, the Friend, the Redeemer of mankind. You have only to stand before it for a little time to judge of the effect it produces on the minds of the passers-by.

I have little to add. I have not consciously diverged for a single moment from the subject before us, and from that wise and generous aim of the "Art for Schools Association," which I would most gladly further. I began by showing how dull, how gloomy, how squalid are our cities. I argued how sad a thing it was that thousands should thus have no chance of reading those autographs of love and blessing which, for our eternal instruction, God's own hand has thus inscribed in the stars of heaven and the hues of earth. I dwelt on this abnormal exclusion of every elevating and refining influence, this absence of natural beauty from the lives and from the very conception of our masses, as one source of the drink and degradation which meet us on every side, and I gave instances of the regenerative power of nature in awakening the expulsive force of purer affections. My next aim was to illustrate the truth that art is the necessary in-

terpreter of nature, and that in art nature speaks to us, as it were, in the tongue of the sons of men. I showed that where good art is neglected as an agent in education, bad art will exercise unchecked its vulgarizing, demoralizing, almost dehumanizing influence. I brought instances to show that objects of art do, demonstrably, exercise an extraordinary power over the imagination of the young, to the extent of even influencing their entire destiny; and that when rightly used, when duly explained, when frequently referred to, they may be made an engine of the best and loftiest moral teaching. It only remains to sum up, in a few last words, the practical bearing of the truths which I have been endeavoring to impress. Nothing can more clearly show the *doctrinaire* character of our educational system than the extent to which every truth and principle I have been urging upon your attention has been ignored. We have been for years paying tithes of mint and anise and cummin to the three R's, and have been totally disregarding the weightier matters of life, the admiration, hope, and love by which we live. You may go into a city school, and the children will tell you very rapidly how much seven-and-twenty pounds of bacon cost at ninepence farthing a pound; but they may never have breathed the fagrance of a lily or so much as seen a bee. We leave our schools bare and ugly with

> "The master's desk,
> Deep-scarred by raps official;
> The warping floor, the battered seats,
> The jack-knife's carved initial;
> The charcoal frescoes on its walls,
> Its door's worn sill, betraying
> The feet that, creeping slow to school,
> Went storming out to playing."

Whereas we ought to take pride and pleasure in adding to the happiness of children by making our schools lovely. We make them like prisons when we ought to make them as much as possible like homes, and better than homes. We leave our poor hard-worked masters and pupil-teachers to toil on in a wilderness of squalor, when we ought to surround them with things which would refresh the eye and relieve the heart. We make art a mere luxury for the rich, when it should be our pride to make it a free gift for the poor. We reduce our schools to a *terra incognita*, because we leave in them no single object of interest or beauty which might attract any one to visit them. We spend three millions yearly on elementary education, and yet spare the mere fraction of expense which might help to make school hours more pleasant and school-buildings less repellant; and

which, if wisely utilized, might develop in children not only a higher intelligence, but also a sense of revolt against things brutal, and a sense of dislike to all that is morally and physically foul. It is but little that we can do at the best; and vast and terrible and deeply seated is the work of evil which has to be undone. We shall not, indeed, bring Utopia at once into existence by surrounding the children of the nation with objects of beauty, and with the reproduction of lovely scenes and noble works of art; but all that we do in this matter will be work done in a right direction. Utopia, after all, — such, at least, is the only hope which can inspire any genuine effort, — "is but another name for time"; and if any one tells us that our present efforts will have but an infinitesimal influence for good amid the weltering surge of human misery which threatens to sweep over the whole surface of civilization, we may answer, in the words of an eloquent divine, that God binds up even the grains of sand in the wings of the wind, that they may become a barrier for the raging of the sea.

A TREATISE ON PSYCHOLOGY.

BY MRS. LOUISA PARSONS HOPKINS.

CHAPTER V.—JUDGMENT AND REASON.

For Normal Classes, or as a Preparation for Teaching.

In the processes of mind involved in sense-perception, memory, and imagination, we find evidence of a pervading faculty essential to them all which we call judgment. The function of this faculty is to analyze and compare the facts of apprehension, and draw a conclusion from this analysis and comparison. Every act of sense-perception is to some extent a judgment, and involves comparison and generalization, a balancing of associated sensations, and a determining apprehension of their relations. Aristotle called perception an act of judgment.

This faculty of judgment is exercised by the child in gaining his ground facts. He observes qualities, then compasses them, as to degree, as to kind, as to effect; and on this comparison as a basis he forms a judgment; by this judgment he analyzes, compares, generalizes, and arranges the results of observation which he holds before his mind for this purpose. Judgment, therefore, includes apprehension, abstraction, analysis, comparison, generalization. It lays a foundation for memory and imagination by grouping or classifying facts in the mind according to every variety of association, so that these faculties may have their material assorted and ready for use.

Watch the child in his play: you see that after observing qualities he naturally compares them. This block is higher, that is straighter; this is smoother, that is rounder; this is brightest, that is darkest, etc. According to this comparison he goes on to arrangement: these are like, those are unlike; this belongs with the hard things, that belongs with the soft things; this is a living thing, that is a thing without life; this is a mineral, that is a plant, etc. He classifies things either consciously or unconsciously, according to their common properties, and assigns each new fact of knowledge its place in this classification by the law of resemblances. This act of classification is complex; it rests on sense-perception and memory, but includes the power of holding a property or quality; that is, an abstract idea before the mind for analysis or comparison. This power is by some psychologists called abstraction, or the power of

mental conception. In all complex operations there is a series of judgments or decisions founded on a comparison of qualities, and following a natural sequence of cause and effect, or evidence and conclusion. This series of judgments constitute reasoning.

Concentrated attention of the mind is necessary to the correct exercise of judgment; *i. e.*, a power of reflection, of considering the facts of apprehension as they lie in the mind, and a power of decision when the attention and reflection are complete. The faculty of judgment is susceptible of constant and careful culture. It should be called into exercise at every step of education. It will lead the child to intellectual and moral results which shall be final; to decisions which he need never again question. This result is especially pronounced in the application of judgment to conscience; inductive conscience, or conscience in its applications to courses of conduct, is in many cases surely an act of judgment. In the education of the faculty of judgment and reason, the part of the teacher is to see that no mistake is made in the process; that there is clear apprehension, just comparison, thorough analysis, and orderly generalization. Through this process of judgment the child is to classify all his knowledge, and learn the relations, the uses, and the laws of material things; this is the pursuit of science. By the same faculty also he forms a standard of moral action, and discovers the direction of duty.

Judgment becomes more and more complicated as the intellectual and moral faculties advance in their development. A larger field for comparison, a greater number of relations and associations, enter into an act of judgment as facts accumulate in the mind and knowledge increases; but this complexity is met by the accumulation of definite judgments already made. These form a fund of experience which need not be worked out afresh, but contains already elements of knowledge to be relied upon as decisive in further judgments. As fundamental experience and accumulated judgments are fixed in the mind they become unconscious, consolidated, and organic, and are automatic or instructive in their action; they furnish the innate ideas of the mind and soul and enter into the structure of both, to be transmitted from one generation to another. Thus they are the most important and enduring acquisitions of mankind.

The operations of judgment are common to all men, but the faculty of generalization is very unequally distributed, and is one of the highest exercises of the human intellect Sense-perception and memory are common to man and brute animals, but analysis, comparison, and generalization are distinctively human attributes; yet

we see some approach to these operations in the more intelligent and sagacious animals. The instinct of the bee, the ant, the spider; the intelligence of the dog, the horse, the elephant; the adaption of means to ends to a greater or less extent by all animals, indicate the presence of organic, if not conscious, judgment.

A word alone expresses sense-perception, as *rough, blue, wood;* but a sentence or affirmation is necessary to express a judgment, as *this wood is smooth; this vessel is a brig.* The act of judgment is not expressed by the name of a thing or quality, but requires a predication or assertion. As sense-perception involves a judgment, so all consciousness also includes a judgment or discrimination. We cannot have an apprehension of the relation of things without judgment. We cannot decide upon the moral quality of actions without judgment; when we have thus decided, then conscience directs us to do the right and omit the wrong, to abhor the evil and cleave to the good, and the will determines our obedience to conscience; therefore judgment, conscience, and will are necessary to conduct.

Anything which disturbs our deliberate attention to the object of judgment, as any passion or emotion or imagination, hinders the correct result of judgment; it may confuse even sense-perception, and prevent that just comparison which gives us the true result of observation. This disturbing element operates in the direction of both intellectual and moral judgments, to pervert or to blur them. We cannot trust to the justness of our judgment where we are influenced by a strong feeling in one direction or another. We should divest ourselves of a preference before we conclude a judgment. This principal is acknowledged in legal trials by jury: no one is allowed to make one of a jury who has a preconceived opinion respecting the matter to be judged, or who may have any selfish interest in the decision.

Judgment extends to all knowledge and all opinion, to every kind of evidence, certain or uncertain; if the evidence is certain, demonstration and proof result; if uncertain, the judgment is uncertain, the result probable or possible. Good judgment is the result of good sense; nonsense is contrary to right judgment. Common sense is that degree of judgment common to men of experience in all ages, or that result of common experience, which is organic or instructive judgment. It is that degree of sense which is necessary to our relations with our fellows and our surroundings. Common sense is a rectifier of individual peculiarities of judgment; it gives a standard by which men can correct their judgments; it is a tribunal of great authority, and its conclusions are according to right reason. It

entitles men to be called reasonable beings. Principles of common sense are axioms, self-evident truths, upon which all men agree, and which are the foundation of all further judgments and all knowledge.

It is not in our power to judge as we will, but our judgment is made necessary by our evidence and our intuitions. Judgment follows apprehension inevitably; it cannot go back of self-evident propositions. Every conclusion reached by reasoning must go back to axioms. The science of mathematics is established incontrovertibly on the foundation of a few axioms or truths which are apparent to common-sense or natural judgment, although to some minds some principles which require demonstration for most men are axioms also. All sciences are built up in the same way on facts of intuitive knowledge. In reflecting upon the processes of the mind itself, the mind works in a natural order of reasoning from cause to effect, according to an inherent sequence of judgment which may be analyzed and arranged, and this analysis or arrangement of the order of reasoning constitutes the science of logic and furnishes the rules for correct reasoning.

Axioms, or intuitive truths, are a part of the consciousness, and must be treated, as are the senses, perception and memory, as the necessary means given us by God for discovering the truth. Our ordinary conduct in life is built up on these intuitive truths and first principles of reason. Any man who fails to recognize them and act upon them is adjudged insane. The axioms of any science are the first things to be settled in the mind in the study of that science, and are at once perceived to be according to the nature of things. There are axioms of taste which are perhaps less universally recognized, but, being perceived by those whose development of taste is most marked, are accepted, on their recognition or revelation, by all mankind. There is a standard of beauty which, though not discoverable by all men, is by all men acknowledged, on the revelation of genius, to be supreme. There are axioms in morals and in philosophy, on which are built up the moral code and the spiritual development of mankind.

Every code of morals, as well as every form of religious belief, is the result of the application of the judgment,—either the instinctive judgment of common sense, based on intuitive truths, or the active and conscious judgment of each individual man applied to the moral and religious ideas which have come to his mind originally or through other minds. Each man must decide by a process of reasoning from intellectual evidence what he shall regard as truth, and therefore

authoritative. If he makes such decision without such process of reasoning, he has superstition, but not belief. Yet the process of reasoning may lead him to the conclusion that the limitations of his intellect prevent his forming a judgment by such reasoning, and that an authoritative revelation of truth has been made to him which he must accept as he would accept his intuitive truths; *e. g.*, a man may, by evidence and a course of reasoning from historical and philosophical facts, adopt the Bible as a moral and religious authority, and the Christian religion as a revelation of truth which could not have been a result of human judgment, and then accept its statement as truth, even where they extend beyond the domain of reason.

Reason is, therefore, the guide to conviction directly by its own processes within its limitations, and indirectly, or initiatively beyond its limitations, through the revelations of higher agents of perception; it is not infallible, because so often affected by imperfect apprehension, incomplete evidence, a biasing emotion, or affection or desire, or by pre-occupation of the mind and judgment; yet we are compelled to follow it in the search for truth; but we should regard with suspicion conclusions which do not accord with the common sense of the race. On the other hand, we should never accept the judgment of others, where common evidence exists, without applying our individual judgment, and drawing the conclusion of our own reason. We should also teach the child to draw its own intellectual and moral inferences, where it can safely be led to form them correctly and reach true conclusions; we should appeal to his reason at every step, that he may acquire the mental habit of perceiving the connections of cause and effect, and the motive and result of his actions.

The child naturally proceeds from fact to opinion, from experiments to principles; his method is that first laid down as the method of nature by Francis Bacon, and is called inductive reasoning. Deductive reasoning begins with the rule or principle, and is founded on the axiom that what is part of the part is also part of the whole; it gives the class distinctions, and then draws a conclusion respecting the individual. Inductive reasoning is founded on the axiom that what is true of every constituent part must be true of the whole. It examines a number of individuals to discover a general resemblance or ground of classification, and reaches the law, or principle, by detail. The first begins with a theory, and deduces its facts; the second begins with facts, and deduces the theory. Modern education proceeds by the methods of inductive reasoning, which are the natural methods of the developing mind.

The highest development of the inductive reasoning is exhibited

by the discoverer of nature's laws — Newton, who from the fall of an apple discovered the law of gravitation for the universe; Franklin, who discovered by experiment the laws of electricity; Gallileo, who came to conclusions regarding the shape and motions of the earth; Leverrier, who discovered by inductive reasoning an unknown planet; Columbus, who found an unknown world by sailing according to the directions of his inductive reasoning, etc. All these illustrated the power of conviction reached by reason, which is the most thorough and effective use of the intellectual faculties.

In a train of reasoning, every step will be intuitively perceived as a result of comparison and the relation between cause and effect. To comprehend and follow a series of steps in reasoning requires ability and training, but to originate a true sequence and reach a legitimate conclusion which gives certainty of conviction where there is no other authority or knowledge, requires a superior understanding, and, combined with imagination, leads to the highest results of genius.

Spencer says: "The actions we call rational are, by long-continued repetition, rendered automatic or instinctive. Whatever the microscopist places under the object-glass is seen inverted and with its right and left sides interchanged. All adjustments of the stage, and all motions of his dissecting instruments have to be made in directions opposite to those which the uninitiated eye would dictate. Yet habit renders this reversed manipulation as easy as ordinary manipulation; it becomes as unnecessary for the microscopist to take thought how he shall move his hands in the one case as in the other. . . . In short, many, if not most, of our common daily actions (actions every step of which was originally preceded by a consciousness of consequences, and was therefore rational) have, by perpetual repetition, been rendered more or less automatic. The requisite impressions being made on us, the appropriate movements follow, without memory, reason, or volition coming into play. . . . . Beginning with reasoning from particulars to particulars, — familiarly exhibited by children and domestic animals, — the progress to inductive and deductive reasoning is similarly unbroken, as well as similarly determined. And by the accumulations of experience is also determined the advance from narrow generalizations to generalizations successively wider and wider. . . . Thus it happens that out of savages unable to count up to the number of their fingers, and speaking a language containing only nouns and verbs, arise at length our Newtons and Shakespeares."

THE NORMAL SCHOOL PROBLEM.

BY W. H. PAYNE, OF MICHIGAN UNIVERSITY.

The special question that I am to discuss is this: "Has the time come for a radical change in normal school courses of study?" It seems to me that any adequate treatment of the theme proposed makes necessary a discussion of the larger question which I have ventured to call "The Normal School Problem." At the very outset, we doubtless all agree that the organization and management of this class of schools is still a problem. If any one has reached absolute assurance in this matter, it must be because his information or his range of thought is very limited. We will recollect that this question is relatively a new one. The methodical discussion of the general educational problem was begun in earnest twenty-three centuries ago, while the germ of the normal school was dropped in the soil of the seventeenth century. Even now we have scarcely a firm grasp of the main elements of the general problem of education. It is therefore little less than presumption to think that this new problem has reached anything more than a provisional solution. To use Mr. Spencer's happy phrase, I suppose that our main purpose is "to take stock of our progress"; to review our mode of doing business up to date; to estimate the net result of all our efforts, and, in view of what has been, and what ought to be, to make those readjustments which the situation demands Wise revision requires both retrospection and prevision. That our progress may be safe, the knowledge of what *should be* is quite as essential as the knowledge of what *has been;* and that we may advance with reasonable rapidity, this reflective taking of stock should be made at not infrequent intervals.

In all humanitarian enterprises, these deliberate revisions are the more necessary from this circumstance, — that while, for the most part, they owe their origin to a powerful sentiment, this motive will in time spend itself, and must then be replaced by an impulsive force of the logical type. Feeling will cause a great movement, but, in the end, it must be defended and sustained by reason. One of the most inspiring pages in American educational history is that on which is told the story of the planting of the first normal school in this country at Lexington, Mass. If I interpret this history aright, the movement which culminated in the establishment of this first American

normal school was due to the ardent zeal of a few enthusiastic friends of popular education rather than to the logical deductions of the thinker. The sanguine expectations of these noble spirits are most pathetic. They seem to say, "The fate of the Commonwealth depends on the right education of the youth. The quality of the schools depends on the learning, virtue, and skill of the teachers; they must be men and women who have set themselves apart for this high service, and who have been especially trained for its difficult duties. The all-important thing, therefore, is the Teacher's Seminary. Give us this, and our best wishes for the Commonwealth will be fulfilled." This, in brief, is the story of this movement as it comes to us from the pages of a half-century ago, and it is typical of all similar movements. Western towns sometimes spring up, as it were, in a single night; and without established industries, or even a fixed population, a heavy tax is levied for the building and equipment of a high school. The enterprise owes its origin and completion to popular zeal, and often to a zeal not at all according to knowledge. Before the mortar has been well hardened, the tax-gatherer destroys the illusion, and then the enterprise that was born of sentiment is saved, if indeed it be saved, by argument.

I imagine that if the venerated men whose hearts were gladdened by the final triumph of their hopes were present with us to-day, they would confess their disappointment at what has been accomplished by the normal schools during the nearly half-century of their existence. The improvement in the status of the teaching profession has not been as marked as they anticipated. Instruction has not improved in quality to the degree they dreamed; and perhaps more than in all else, they would feel a disappointment in the popular appreciation of teacher's seminaries. And if their voices could reach our ears, I doubt not they would counsel us to do what we are now attempting to do,—to revise our ways to the end that the normal school may be better equipped for its mission.

However good and earnest our intentions may be, it is doubtless impossible for us to rid ourselves of the disturbing influence of the "personal equation." Looking at the same object from different points of view, our impressions and our conclusions can scarcely fail to be different. So far as the formation of an accurate judgment is concerned, nearness to an object and remoteness from it are equal misfortunes. In both cases we are the victims of false perspective; we either see too much or too little. An architect that should direct the building of a pile wholly from within would incur the gravest risks of miscalculation; his safety would lie in receiving the impres-

sions of another who had studied the general effect from a normal distance. Ownership not only reconciles us to what we may chance to have, but may even conceal from us the defects that are as open as the day to others. On the other hand, it is easy to disparage what is not our own, especially when there is the least motive for such disparagement. The conclusion of the whole matter is, that in the case before us we shall gain rather than lose by the comparisons of presentation that have been gained from different points of view. Provided our studies have been patient and thorough, and we are obedient to the laws of candor and courtesy, such comparisons of views cannot fail to be fruitful.

I feel bound by a sense of fairness to state that my point of view is probably quite different from that occupied by the most of you. In the actual administration of normal schools proper I have had no experience. As to the limitations that are due to material, time, and the needs of the schools, as you must consider them, I can judge only by reflection on the facts coming to me at second-hand; and much as I may wish to put myself in your places, I can do it only through imagination, and then of course imperfectly. Besides, partly from the necessities of my position, and perhaps even more from predilection, I feel most interest in the theoretical aspect of normal instruction; while, from the very necessities of your position, you feel impelled to study this problem mainly from its practical side. But if we grant that the theme of our discussion has these two aspects, the theoretical and the practical; that there must be a theory teaching because there is an art of teaching, it is clear that we shall gain by looking at the normal school from these two distinct points of view. "Studies," says Bacon, "are perfected by experience." Men of action, held responsible for results, are adequately protected against the dangers of theorizing. Some of you, I am told, are suspicious of ideals; I cannot think that we have anything to fear from the steady contemplation of the normal school as it ought to be. I know that the ideal school, even if we could have it, would be impracticable; working schemes must be adapted to the imperfections of those who manage them, and of the material on which they operate. But we are all weighted in the race we run; our clumsy fingers can never execute the divine pattern seen in the mind's eye. The utmost we can do is to approach our ideals; we shall never reach them. Whether in morals, in art, or in action, aspiration after the ideal is the very condition of progress.

1. The normal school is not only an essential instrument of educational progress, but is itself a product of that resistless on-

going which we term civilization. Illuminating gas, coal-oil, the electric light, the printing-press, the telegraph, the telephone, are not so much inventions and discoveries as growths. Each of them echoes, as it were, the voice of fats; their not coming is inconceivable. And so the normal school was one of the products of the times; its coming could not have been considerably hastened, nor could it have been prevented; it came in response to certain needs, and it has come to stay. Its mission is as definite as that of the common school, the college, or the university. As it was the product of a growth, it will itself exhibit all the essential phenomena of growth. The functions it first performed were responses to the scholastic needs that were then most pressing; but as there is continuous growth in the conception of education, the needs of the school will suffer progressive changes, and so the functions of the teacher's seminary must necessarily pass through a series of upward transformations. I think we must go farther than this, and say that the normal school should not merely keep an even pace with the educational thought of the times, but should be itself a leader in educational thought. It should "allure to brighter worlds, and lead the way." In its doctrines and methods it should anticipate the needs of the times, and should give conscious and even authoritative direction to both educational theory and practice. Those who are charged with the administration of normal instruction should occupy the very outposts and watch-towers of educational progress. For these high functions, there is necessarily not only a knowledge of all past achievements in the line of educational thought and action, but a rational culture of ideals that will permit some degree of prophecy. The fact is, the era of normal instruction has only just begun. It remains for our successors, near and remote, to possess and to cultivate a land in which we are pioneers and pilgrims.

In a bridle-maker's shop near the Forum at Athens, in the fifth century B. C., Socrates preached the doctrine that a man should make a profound study of whatever art he purposed to follow as a vocation, and blasted with merciless sarcasm the presumption of Euthydemus, who aspired to civil employments for which he could plead no other fitness than a collection of miscellaneous books. Is it not curious that the last of the liberal arts to heed this plain and wholesome lesson is the one we profess? I imagine that Socrates intended that memorable lesson, at least in part, for the professional teachers of his day; but the conceit of the Sophist was proof against a doctrine that would virtually abolish his peculiar vocation. Now, however, this doctrine is fairly in the ascendant; and as the normal school

is an outgrowth of it, it rests on a basis which can never be disturbed.

2. We may distinguish three distinct phases of opinion with respect to fitness for the office of teaching. The earliest assumption was that scholarship was the one thing needful. When the contrast between the lettered few and the unlettered multitude was so real and so striking, it was of course easy to see that only the learned could teach; and from this the inference was easy that all who were learned were thereby qualified to instruct. This was the dominant conception till modern times, and is widely prevalent even in this day, as we may see from the statute-book and from the current examinations of teachers.

But from an early date it must have been observed that there were teachers and teachers, and as the contrast between the lettered and the unlettered became less and less obvious, the contrast between good teaching and poor teaching became more and more obvious; and as this observed difference could not be ascribed to mere difference in scholarship, it was attributed to good and bad methods. Under this higher conception, the two main features in a teacher's preparation were matter and method, and no doubt greater emphasis was given to method, from the circumstance that elementary instruction had now become of pre-eminent importance. Mature minds can be left largely to self-direction; but the young are dependent on the art and skill of those who instruct them. The preoccupation of the ancient teacher was the mature mind, but of the modern teacher, the immature mind. The exponent of the conception that method is an essential element in preparation for teaching is the early normal school.

The moment method becomes an object of deliberate study, a comparison of methods becomes inevitable. In teaching the instrumental part of reading,—for example, the phonic, the phonetic, the word, and the sentence, methods are brought into rigorous contrast and become rivals. Out of this discussion there issues the necessity for a final and absolute test or criterion; and this criterion, of course, turns out to be a psychological law. The problem of primary reading thus permits a scientific solution; and it is an easy step to the inference that a teacher should not only be furnished with good methods, but should also know the scientific basis of method. It is in this way that the art of teaching is now passing from the old-time empirical stage into its future and permanent rational or scientific stage. It cannot be said that we are now fairly living in this new order of thought. The most that can be affirmed is that some principles are recognized by some teachers, and that there is a growing disposition

to study fundamental doctrines. The ideal teacher is not merely to be wise, as the primitive conception of fitness required, nor yet to be furnished with matter and method as the best current thought demands; but is to superadd to these necessary requirements a knowledge of the principles, physiological, psychological, ethical, and sociological, that underlie the educating art. It is refreshing to observe that the pioneers in the normal-school movement in this country proclaim with one accord the importance of the study of the theory and history of education; but these utterances are to be regarded as prophecies of what should ultimately be, rather than as prescriptions for immediate adoption. It is certain, I think, that even in the aggregate the normal schools of the country have made only slender contributions to the science of teaching. I intend this remark to be a statement of a historical fact rather than a criticism. My main purpose in this paragraph has been to show that a new and final stage has been attained in the conception of fitness for the teaching office, and to suggest that the normal schools of the country should adjust themselves to this ascendant order of thought.

3. Another proposition in which we shall doubtless all agree is, that one essential characteristic of a true teacher is that high quality of soul denominated culture. I imagine that this term escapes rigorous definition, though we instantly recognize the quality when once in its presence. I know of nothing that comes nearer a definition of culture than Plato's conception of the philosophic character. In Jowett's version it is as follows: "A lover, not of a part of wisdom, but of the whole; who has a taste for every sort of knowledge, and is curious to learn, and is never satisfied; who has magnificence of mind, and is the spectator of all time and all existence; who is harmoniousy constituted; of a well proportioned and gracious mind; whose own nature will move spontaneously toward the true being of everything; who has a good memory, and is quick to learn; noble, gracious, the friend of truth, justice, courage, temperance." (*Republic*, 476–487.) Perhaps we might summarize this statement and say that the essential qualities of culture are as follows: comprehensiveness and elevation of mind; quenchless zeal for knowledge; grace and harmony in mental endowments; an ardent lover of whatever is true, beautiful, and good; an educated will that moves spontaneously toward the right. Such an ideal as Plato has here drawn is the ripened fruit of a whole life-time of training. During the ordinary period of education, the process that leads to this final result can be scarcely more than well begun; but we will all agree that the tendency of the school from first to last should be toward

this Greak ideal of a perfectly matured soul. What I wish particularly to insist on is that the nurture of the normal school should be such as to bring the teacher himself well on his way toward these high accomplishments, to the end that he may lend a kindred inspiration to those who may fall under his influence. Or, if this is expecting too much, there should at least be a kindling of that noble zeal which makes possible the attainment of some kind and degree of culture. I cannot conceive that any man or woman is fit for the teacher's office, unless he "has a taste for various sorts of knowledge, and is curious to learn, and is never satisfied." A primary school that does not create something of this spirit, or a primary school that does not create a marked degree of it, must be counted as essentially a failure; while in a normal school, it seems to me that it should be the dominating spirit.

4. It would doubtless be thought a great misfortune if the professional life of physicians were, on the average, no longer than three or four years. In such a case human life would be constantly exposed to the dangers of empirical practice; for within this short period the physician's previous studies, however careful they might have been, could be only very imperfectly perfected by experience; the service rendered under such circumstances would necessarily be crude. Still further, in anticipation of this short period of service, the preparation would be hasty and superficial, and very likely the average grade of ability employed in this transient service would not be high. But the culminating effect would be a slow and halting progress in medical science; for there would be no opportunity to capitalize the perfected fruits of experience. This hypothetical case describes the actual condition of the teaching profession, and permits us to see the need of encouraging in every possible way a lengthening of the teacher's term of service, so that this employment shall become a vocation rather than an avocation. That there will always be a considerable transient element in our profession seems certain; and this fact shows the need of giving our serious attention to three things: 1. This transient membership should be made relatively less than it now is; 2. This service should be directed by what Plato calls "true opinion," or the matured results of the best thinking; and, 3. The permanent membership should be greatly increased by holding out as an inspiring motive the hope of an honorable career. This brings me to the special observation I wish to make. As the normal school is a professional school, its nurture should be such as to supply its pupils with motives sufficient in kind and in intensity to make them zealously inclined toward teaching as a permanent calling. For this

purpose the main essentials are four: 1. There must be a general intellectual quickening, so that there shall be developed and established a love for the scholarly vocation; 2. There must be a feeling of hearty respect for the teaching service, awakened, as it seems to me, by a knowledge of educational history; 3. There must be an outlook into the future which will disclose the possibility of invention and discovery, a result to be reached only through the study of educational science; and, 4. There must be a thorough infusion of the scientific spirit as distinguished from the spirit of tradition and routine, — the teacher must be a man of science in the same sense that the accomplished physician is a man of science. I am persuaded that the motive which most attracts minds of the higher order into certain vocations is the opportunity for the free exercise of tact, talent, ingenuity, invention, discovery, and all the resources of a well-stored and well-disciplined mind. Minds of the better order love to take chances, to run risks, to anticipate the new, and to compass by sagacity some victory over danger and difficulty. To all such minds, the possibility of achievement is an inspiring motive of the highest order.

I will now turn to another set of propositions, where, possibly, there will be more or less dissent arising principally from our different points of view. I find no pleasure whatever in disagreement; and whenever I express dissent it is out of loyalty to what I think to be the truth. Neither have I any over-confidence in my own opinions, for I can heartily subscribe to this sentiment of Helvetius: "*J'ai trop souvent trouvé mauvais le soir, ce que J'avais cru bon le martin, pour avoir une haute opinion de mes lumières.*" Particularly in one of the matters I shall mention I cannot resist the feeling that I must be wrong, because my opinion is opposed to the one held by so very many who have better opportunities for knowing. But even in this case I am sure I shall be pardoned for trying to express what I seriously think, especially as my thinking has been long and patient.

1. I am conscious of the danger I incur of seeming to say more than I mean, or to underrate the importance of one factor in the elements of a teacher's preparation. I believe the importance of empirical method has been greatly over-estimated, and that this over-estimate has obscured the necessity of generous scholarship. Method has been so detached from the *tout ensemble* of teaching, and has received such stress of attention in the way of study and practice, that, to some extent, it has played the part of usurper. Of the conditions under which method is best learned I shall speak further on. What

I wish to say at this point is, that important as method must be allowed to be, it cannot be accepted as an equivalent for scholarship; and that if by the *rôle* now assigned it, or by the manner in which it is taught, the value of high literary culture has been obscured, the normal schools of the country have fallen into a serious error. It is my belief, founded on observations of the work done in representative normal schools, as well as on the history of teachers educated in such schools, that the imminent danger is that of slender scholarship. Without saying that less stress should be given to method, it seems to me that much more stress should be laid on literary culture. "We would not have Caesar less, but Rome more." If the Platonic conception of culture be kept in mind, I think I shall not be misunderstood when I say that a graduate of a New England seminary or of a New England college, with no other knowledge of method than he may have imbibed from his own scholastic training, is more likely to become a living power in the school-room than one who has pursued a secondary course of instruction while pre-occupied with the study of method.

2. The ground for the last remark is the following proposition, the truth of which seems to me to admit of but little doubt: A study pursued with direct reference to practical ends looses a considerable portion of its culture value. That this doctrine is supported by authority of such weight as Plato's is proof that there is some ground for thinking it true. Plato's antipathy to what we call practical studies is well known. Thus he says of arithmetic: "It will be proper to enforce the study by legislative enactment, and to persuade those who are destined to take part in the weightiest affairs of state, to study calculation and devote themselves to it . . . not cultivating it with a view to buying and selling, as merchants and shop-keepers, but for purposes of war, and to facilitate the conversion of the soul itself from the changeable to the true and the real." (*Republic*, 525.)

Throughout his entire discussion of the educational question, Plato is preoccupied with the disciplinary or culture value of studies. The mind is to be made the perfected instrument of thinking, and the soul is finally to be brought to the contemplation of pure truth; the attainments most to be desired are self-poise, and a sense of unity and completeness. This upward movement of the soul, as Plato taught, is checked and destroyed by descending to practical activities. Unity and wholeness are essential to culture; the utilities disintegrate and destroy. The broad contrast is here between the practical value of a subject, and its value for culture; and the thought seems to be, that as integration is essential to culture, and disintegration equally

essential to art, the two processes are antagonistic. For example, the culture value of a piece of literary art, as the *Paradise Lost*, will be destroyed by making the poem a parsing exercise. The practice of dissection wouldat least have been harmful to Greek art. Now from a general truth which I have attempted to illustrate rather than to discuss, it is but a step to the inference that a general training and a technical training are in some degree incompatible when conducted simultaneously; or, that if a pupil is preoccupied with the utilities which his course of study may serve, he is thereby debarred from the privileges of intellectual culture. In the matter of normal school instruction, the case, under the foregoing hypothesis, will stand thus: In proportion as the technical element is brought into prominence, the course of study will lose its culture value, and by so much will diminish the real teaching-power of the pupil. Of course this conclusion is based on the assumption that no teaching of high excellence is possible without a confirmed love of letters and a a considerable degree of literary culture.

This view as to the effect of concurrent general and technical training in normal schools is by no means new. Thus, in his "Training of Teachers," Mr. Laurie observes that "the moment we substitute a distinct practical purpose . . . . as the exclusive aim of education, and arrange the whole machinery of an institution to attain any one of these ends exclusively, the mental life of a student becomes at once narrowed, and education in the higher sense disappears altogether" (p. 11). To the same effect is this quotation from Mr. Fitch's "Lectures on Teaching." "It is not good that this science, or indeed any other science, should be mainly pursued *per se*, in separate training institutions or professional colleges, where the horizon is necessarily bounded, and where everything is learned with a special view to the future necessities of the school-room or the class-room" (p. 5).

3. In the next place, this many-sided problem requires us to note the effect of habit on growth. I have been impressed by this remark by Mr. Sully in his late work on psychology: "Habit refers rather to the fixing of mental operations in particular directions. Taken in this narrow sense, habit is in a manner opposed to growth. By following out a train of ideas again and again, in a certain way, we lose the capability of varying this order, of re-adapting the combination to new circumstances. Habit is thus the element of persistence, of custom,—the *conservative* tendency; while growth implies inflexibility, modifiability, susceptibility to new impressions,—the *progressive* tendency" (p. 49). To this statement, I think, the following observa-

tion should be added: The bad effect of habit in checking growth and versatility is great in proportion as the range of intellectual vision is narrow, and the degree of mental discipline low. Meagre scholarship succumbs to routine; liberal scholarship not only escapes its tyranny, but may dominate habit. There can be no versatility without breadth; but at the best, breadth of scholarship is of difficult attainment in secondary schools, so that it seems to me a dangerous procedure to train pupils of a normal school into fixed methods of teaching based on authority, at least before they have been instructed in doctrine. The fear is that through preoccupation with the study of method, and through the illiberal effects of fixed habits, there may not be that quickening into the intellectual life which is of all others the most precious endowment of the teacher.

My observations have been confined chiefly to Western normal schools and the teachers they have educated, and I have been struck with the fact that only a very few of those who have had their training in these schools manifest a decided love of learning. In some way the greater number seemed to have escaped the contagion of noble minds. If this is generally true, the phenomenon must have some general cause for which there should be diligent search; and in these two paragraphs I have attempted to give what appears to me a probable explanation. It should be added that, according to one conception of the normal school, what I have ventured to speak of as a fault would be esteemed as a peculiar excellence. I have heard it maintained by two distinguished educators that the most desirable endowment of a teacher is mechanical exactness and expertness, and that freedom and versatility are dangerous. This much must be conceded: if the teacher is illiterate, it is best that he should be a machine; but if it is allowed that the teacher should be scholarly, he must be granted the largest play of tact, talent, and invention. Only typical uniformities in method should be insisted on. In dealing with spirit, analogies drawn from the manipulations of matter are full of danger. Within what I have called typical uniformities, a teacher's method should have the characteristic stamp of his own genius and personality. For example: following the general law of presentation, the sequence will uniformly be from aggregates to elements, and then from elements back to aggregates; but in the details of practice, there may be within the sphere of this law the greatest diversity of procedure. No two good teachers of the word-method or of the sentence-method will conduct a recitation in reading in the same fashion.

4. Another preliminary statement that seems to me essential to a

proper understanding of the normal school question is this: One should know considerably more than he expects to teach; his grade of scholarship should be considerably higher than that of his pupils. The reasons for this rule are obvious. A teacher who is compelled to work nearly up to the limits of his scholarship loses his self-respect and so misses the necessary support of moral courage. A clear perspective can be gained only from a considerable eminence. The parts of the educating process that fall within the provinces of the individual teacher should be seen as they are related to a comprehensive whole. And, perhaps more than all else, a teacher cannot create among his pupils an aspiration atter higher attainments unless his own example is an open invitation to covet the highest gifts. If this general doctrine is true, it seems to me to warrant the following rule: A teacher for a school of a given grade should be educated in a school of a higher grade. If the education of the country could be administered under the spirit of this rule, two or three generations would suffice to exhibit a marked elevation in the intellectual condition of the people. When the typical Scotch school-master held a diploma from Glasgow, Edinburgh, or Aberdeen, the type of intellectual life, as a prevalent fact, was higher in Scotland than in any other country in Europe; and decadence in this intellectual superiority set in when the university graduate was displaced by men who had received their training in schools of secondary instruction.

5. The last of the debateable questions that the limits of this paper will allow me to discuss, is this: Is academic instruction a legitimate function of the normal school, or should the school assume that its pupils have a competent knowledge of subjects, and then concentrate its efforts on purely professional work,— instruction in methods and doctrines? This is a very clear case, in which a seeming, but perhaps mistaken, ideal is practicably impossible. There is no doubt, I think, that in general, professional instruction should be something superadded to a general or liberal education, and administered apart. The complete man should be formed first, and then he should be converted into an instrument. For example: the physician should first receive the best intellectual training that is attainable, and when this has been completed, he should concentrate his whole attention on the special studies that his profession requires. And so for the lawyer and the clergyman. In all these cases, the knowledge that is acquired during the course of liberal education is not knowledge that is necessary for professional use; but in the case of the teacher, the matter that is learned primarily as literature or science, is at the same time an essential part of his professional equipment. It thus happens

that every good school, in a true and very important sense, fulfills two of the essential functions of a moral school: it communicates the knowledge which the teacher must in turn communicate, and it exhibits methods which he may adopt in his own practice. We shall be quite near the truth in stating that the function of the superintendent is to reproduce the school in which he was educated; and that the function of the teacher is to reproduce a part of the school in which he was educated. When we say that the school to be reproduced, wholly or in part, has first been transformed into an attainable ideal, have we not stated the whole truth? Manifestly, if there is to be only an exact reproduction of the actual school, there can be no progress in education A new factor must be incorporated into each reproduction, so that there will be at least an arithmetical cumulation of improvements. Whence is this new factor of rising magnitude and value to be supplied? This, I imagine, is the peculiar function of the normal school. We might here make a proximate definition of the normal school as follows: "A model school of secondary instruction whose pupils purpose to become teachers, and are fitted to do educational work of a higher type, through some mastership of the history and science of education." Save in the last particular, this is the historical conception of the normal school. This term was evidently borrowed from the French, and in a debate of the convention in 1794, Lakanal defines it as follows: "Normal, from the Latin *norma*, rule. These schools are to be, in fact, the type or the rule for all the others." The main elements of this problem, as I have conceived it, have now been brought forward; and it remains only to state my conclusions in the form of a general summary, with such explanatory discussion as may appear necessary for the sake of clearness.

1. The three distinctive aims of the normal school are *scholarship*, *method*, and *doctrine*. There is doubtless great unanimity in recognizing the fact that these are the three elements of a teacher's professional education which the normal school should give. The questions in dispute relate to their relative importance and to the manner in which they should be pursued. The following paragraphs will indicate the line of thought into which I have been almost insensibly drawn by several years' reflection on the status of Western normal schools.

2. Of the three elements I have named, I believe that pre-eminent importance should be assigned to scholarship. First of all, the teacher must be a scholar, and no part of his professional education must be conducted at the expense of scholarship. Under scholar-

ship I would include some sensible degree of literary culture, one indication of which is a profound love of good books. The course of academic study should be, in the truest sense of the term, liberal. The specific discipline yielded by such subjects as arithmetic, algebra, geometry, grammar, and physics, should be relieved by the three culture subjects that fall within the range of secondary instruction; geography, history, and literature. Latin, and one modern language, —say French, — seem to me indispensable for the purpose I have in view. I name French because the fruit-bearing stage can be reached so much sooner in this language than in German, and also because much of the pedagogical literature that it is so desirable to read is now to be found in this language. The ability to read with ease a book in another tongue gives the student a delicious sense of power which will foster a scholarly spirit. While in pursuit of scholarship, as here considered, I wonder if I am wrong in thinking that the pupil's mind should not be kept intent on the technical uses which each study is hereafter to serve? It seems to me that I am; at least, I would not have pupils preoccupied with hourly anxieties about the demands of the class-room. It is not prevision that I am discouraging, but a certain sort of prevision. A comprehensive scheme of life that is most befitting a rational creature must exclude anxious questionings as to what we shall eat, or what we shall drink, or with what we shall be clothed. These subordinate purposes are all implicated in a wider and higher purpose, and they are best provided for by a living allegiance to the needs of the higher life. I suspect that this truth has a direct bearing on the intellectual life of the teacher.

It may be added that normal schools have special need to guard the conditions of intellectual culture in all cases where their pupils have missed the opportunities for a careful elementary training. At the age of sixteen or eighteen, the boy at the country-side obeys an impulse to fit himself for the public-school service, and so repairs to the nearest normal school. In this he does well; but from the lack of systematic intellectual training, there will be more or less ingrained resistance to the influences of the scholastic life. In the university with which I am connected, students over twenty-one years of age are admitted to certain studies without passing the usual entrance examinations; and with reference to some of these the remark is not infrequently made, "He began too late!" I believe that this remark indicates the intellectual condition of many students in normal schools, and if so, a somewhat extraordinary effort must be made to stimulate such minds into an activity which shall be self-sustaining.

3. I now turn to the question of method. Let us begin by saying that method is *the way to an end;* and that the sum of a teacher's methods constitute his art. (1.) Let it be promised also that a clear and definite knowledge of the ends to be attained by the study of the various subjects constitutes a considerable part of the science of method; for to know our destination is to know by implication the route over which we must pass to reach it. The other source of prevision is some law or principle, usually psychological. Knowing the end to be attained, as in reading or arithmetic, ingenuity will suggest certain means. Some of these will be rejected because they contravene a psychological law, while others are adopted because they are in accord with such laws. This method of learning method may be called the scientific or rational, and will be further noticed in the next paragraph.

(1.) Method may be taught by dictation, as when we read books on pedagogy or listen to lectures on the art of teaching; that is, we are advised or directed to follow certain rules or processes on mere authority, the reason being scarcely consulted in the case. This mode of procedure is exposed to all the objections that lie against the uses of mere rules. Rules, we know, are indiscriminating. They do not take into account quantity, quality, time, or place. They leave little or no liberty for choice, and so do not cultivate versatility. As mere knowledge, rules are unfruitful. As their action is limited, with almost fatal precision, their reaction in the way of discipline is narrowing and hardening.

(2.) The better aspect of method taught empirically is this: the aggregate of such instruction may result in the formation of an ideal, more or less clear and adequate, of the school and its mode of administration, and so may serve a good purpose in the work of reproduction that has been previously noted. Besides, if we must choose between a rule taught teacher and one who knows neither doctrine nor exact method, we need not hesitate to select the first. Mechanical positiveness and exactness are incomparably better than ignorant uncertainty and vagueness. It has been said that this mechanism is all that many teachers can attain to. If this be true, and if such teachers cannot be spared from the public-school service, then this way of learning method has considerable in its favor.

(3.) In the third place, method may be learned from observation, as in a school conducted by a skillful teacher, frequented on occasion by pupils in training; or in the informal, almost unconscious way, which makes of every school a normal school, and of every pupil a possible teacher. As before stated, I believe that this was the

original conception of the teacher's seminary; that it should be a model school which might be reproduced by pupils who were to learn the art of teaching from imitation. This method has the obvious advantage over the one last stated, that it is a study of the concrete instead of the abstract. An obvious disadvantage is that the school studied may not be the type of the one that is to be produced. This danger is sometimes avoided by having a model school which represents all the grades of a public school.

Strictly speaking, I know of no other ways of learning method than these now discussed,—the scientific, the empirical, and that by observation. Practice-work will be suggested as a fourth, but it is plain that the method must be known before even an attempt can be made to put it in practice. Practice, or, as it is more properly called, experiment, merely serves to make a method more completely known. But practice-work in connection with normal-school instruction has become so prominent that it deserves our marked attention.

I think it is not extravagent to say that a practice school is generally regarded as an indispensable adjunct to a normal school; and a trained teacher has come to mean one who has served a longer or shorter apprenticeship in this experimental school. A school that for any reason is not provided with this necessary adjunct feels itself in an attitude of apology. From all I have observed of the actual results of this kind of training, I do not share the popular appreciation of these experimental schools. In the main, the teachers thus educated, as I have observed their work, embody and display the very spirit of routine. What they do, they do with mechanical exactness; and if their methods chance to be bad, as sometimes happens, it is followed with fatal persistence. At the same time there is often a marked absence of the scholarly spirit, and an indisposition to strive for higher attainments. The effect of technic on culture I have already attempted to illustrate, and so I need not restate this ground of objection to practice work. I will only add that the conditions under which this alleged training takes place are so peculiar and unlike those under which real school work will be done that harm is quite as likely to arise from it as good. The criticism that follows this practice-teaching is quite likely to be either superficial and worthless, or hypercritical and pernicious. If this experimental work is done, it seems to me that it should be done subject to these conditions: The academic training should be well advanced, and the pupil should have gained a considerable mastery of educational doctines, all to the end that he may preserve his freedom. A school of observation seems to me indispensable. The normal school itself will

illustrate the high-school grade, but some express provision should be made for representatives of the primary and the grammar grades.

(4.) The strictly professional studies of the normal-school course are psychology and the history of education. All the reasons that enforce the study of physiology on physicians may enforce the study of psychology on teachers. In each case he is essentially an empiric who has not a competent knowledge of his respective science. A science, truly known, is an art *in posse;* on the occasion of experience it is converted into rules for practice. A liberal art like medicine, law, or teaching, is best learned implicitly through its correlative science. Psychology can be taught in such a way as to have the concrete interest of geography. Studied in this manner it is a culture-subject of almost co-ordinate value with the three previously named. Under wise instruction students in secondary schools can become psychologists in the same sense that they can become geologists; in both cases they can attain to an intellectual comprehension of these sciences. In the case of teachers, psychology has this marked advantage, — that its general truths can readily be converted into practical rules on the occasion of experience. To the teacher of awakened intelligence it is an intensely practical subject. Psychology exhibits the abstract or scientific phase of teaching, while its concrete counterpart is exhibited, or should be exhibited, in the school of observation. If I were to return an articulate answer to the question I was invited to discuss, I would say that the bringing of the really fruitful portions of psychology into greater prominence would be a desirable, though I trust not radical, change in the normal school courses of study.

Plato asserts (*Republic*, 368) that historical analysis is the counterpart of psychological analysis, and in this he is followed by Cousin (*Hist. of Phil.*, I., sec. 2). The thought is that the essential elements of human nature pass into the current of history and are there embodied in a concrete form magnified by many diameters. The page of history is the screen on which are delineated the intellectual and the moral ideas of the human soul. The thought I wish to impress is, that educational history is the counterpart and proof of educational psychology; and that these subjects are the essential constituents of a teacher's professional study. The nearest approach to a radical change that I feel an absolute assurance in recommending is the giving of a large place to the study of the history of education. It is in itself an almost incomparable training in general method. The obstacle hitherto has been the lack of a comprehensive yet definite treatment of this subject; but since the appearance of Gabriel

Compayrè's charming *History of Pedagogy* (Paris: 1884, pp. 484) there is an opportunity open to the normal schools which I trust will be improved.

(5.) By its historical and actual constitution, the normal school in its scheme of academic study is essentially a school of secondary instruction. In consequence of this fact, so far as it recruits the teaching service of the country, the upper limit of its field must fall somewhat within the high-school grade. I call attention to this fact to show that, as at present constituted, the normal schools are not fitted to dispense the professional education needed by head-masters, principals, superintendents, or even first assistants in high schools. If studied preparation is to be made for these branches of the service, it must be made in the colleges and the universities of the country. And when this is done, as it assuredly will be, its most marked effect will be upon the normal schools proper. Enthrone the normal idea in the high places of the academic world, and by a process of downward diffusion it will inspire the whole teaching service of the country.

The last thought I wish to express is, that we ought never to have need of any radical change in the administration of our educational affairs. If such changes are ever necessary it is because there has been some marked arrest of growth. The most that we can desire is continuity of growth, or gradual evolution, — the almost insensible transformation of the old into the new. The highest office of the educator is, by wise retrospection and prevision, to minister to this upward transformation. Whoever preaches revolution is worthy of suspicion and discredit.

PROGRESS IN MEANS OF TEACHING THE CLASSICS.[1]

BY E. T. TOMLINSON, A.M.,
Head-Master of Rutgers College Grammar School.

We live in times when no opposite to progession is allowed. Darkness may be contrasted with light, and heat with cold, but no contrast is allowed in our growth; for the course is,—and is to be,—forward, and not backward. The new era, the era of new things, is seemingly upon us. The material world has seen invention crowd invention, and the end is not yet. A "new education" counts its disciples by the hundreds, and its converts by the score. A "new theology" also appears, and claims and receives its followers and supporters. Even our national affairs do not escape. A new administration is to take the reins of government, and the dream of the proverbial "new broom" is almost realized. The impression is abroad that old things are about to pass away, and all things become new. It is fitting, then, that the classical teacher bestir himself, lest he be swept away as a part of the mental rubbish or garret furniture of former days His subject is no more a fixed quantity than the objects of the scientists' pursuit. The stars change not in their laws, yet astronomy grows. And so there is an ever unfolding view of greater power, of sterling worth, and an increasing practicability of those languages proven good, and the use of which classed many a man as "silver tongued," and through which, as well as upon which, much of the world's best thought has been given.

The world to-day has much to say of environment, and so the teacher of the classics, to keep pace with his age, must have *his* environment. And he has it, often superfluous in quantity and miserable in quality. There is more of the old doctrine of *election* than the modern tenet of *selection* in his surroundings. And so, before we speak of growth in his work, we must briefly glance at his environments, those things that circumscribe and hem him in, and fix the horizon of the world in which he works. *The first of these is the fact that the field of the work of the teacher of Latin and Greek is largely determined by others than himself; that is, the relation in which he finds himself to the college.* I speak largely of preparatory teachers.

[1] A paper read before the Rhode Island Institute of Instruction, January 29, 1885, and published by request in EDUCATION.

With a prescribed course before him, with a goal ever in sight, with an exact knowledge of just how much ground he is expected to cover, and a general knowledge of how he is to cover it, there is a limited opportunity for original work or the play of individual ideas. Parents on the one side, and the college on the other, expect him not so much to teach Latin as to prepare for college, two terms often far from being synonymous. It is said that Dr. Taylor of Andover used to say his object was not so much to "fit for college" as to teach Latin, believing that the latter was the truth of the former. But the independent teacher in an independent position was in a different situation than is the *average* teacher of the *average* position to-day. I do not deny the truth that the teacher ought to have Latin before him more than the college, and I know that the true man will do this, and the truer the man the more he will do it; but I nevertheless believe that the tendency of the college requirements of the present day is to warp and dwarf the teacher by placing him within narrow bounds with a drudgery of detail that not only destroy the opportunities for growth, but consume the tendency and desire for it as well.

The second "environment" is the fact that *the community does not always believe in, and so support, the study of the classics.* This disbelief in the value of the study on the part of the parents is often inherited by the boys (so strong is the law of heredity). Every teacher knows with what eagerness and interest he has persuaded and almost compelled certain of his boys to take up the study against their imbibed notions of its impracticability. This does not destroy its value any more than the value of salvation is the less because preacher and congregation unite in urging some individual to accept it. It is not the value of the offering which is at fault, but the prejudice of him to whom it is offered. This, however, enters as an element into the work of the teacher, absorbing a goodly portion of his energy and thought. He has not only to teach the subject, but to combat and break down unbelief and disbelief as well. It is, then, no slight factor in the make-up of his work.

The third element in the make-up of his surroundings is the fact that *those very qualities that mark and distinguish the successful classical teacher are the very qualities experienced school-boards are seeking for in the man to be at the head of their institution.* The clear insight, the broad view, and the mastery of detail are the very qualities, when backed by a reasonably strong personality, that mark the successful classical teacher and the successful executor alike. Not every classical teacher cares to *assume* such work, but the rule holds

true that if he be successful (I draw the line between teaching and imparting) he is apt to possess executive ability, and so be in demand for executive positions. This being the case, many find their work divided in aim and result, and concentration suffers accordingly. Many a teacher loses much mental energy in deciding whether to give a boy an internal application of Latin or external of something else.

There are two other environments that I might briefly mention, — *text-books* and *book-agents*. Often the "powers that be" leave a man with text-books he does not want, nor can use to advantage; and often the genial and seductive book-agent steals upon him ere he is aware, and does not stop stealing then. And the agent of the wrong book, with the inexperienced teacher,—with pleasant tone and persuasive conversation,—often takes away the good book and leaves a poor one; takes away the keen ax and leaves the dullest wedge in its place. Happy is the teacher who can have what he wants, *knows* what he wants, and where to get it. He is free from one of the environments with which many a teacher would gladly dispense.

Such, then, are some of the surroundings of the average teacher. With a clear idea that his course of work is often mapped out for him, and that he has little or nothing to do with it; that he has often not only to combat the prejudices of the opponents of his work, but to *draw* his pupils unto him as well; that his time aud nervous energies are often to be used in so-called "managing," and that his text-book committee and the pleasing book-agent are frequently disturbing elements, we may proceed to a consideration of some of the objects and means to be effected by progress in the field of the work of the classical teacher.

The first point in which I think progress ought to be made is backward into the spirit of the Latin and Greek languages. There has been a *tendency*, with the light which recent researches in the East have brought forth, and the enthusiasm thereby aroused, to lose sight of the main issue in side issues; to lose the substance in grasping at the shadow. Comparative philology, and the historical unity in the base of cognate languages, comparative forms, and the nice distinctions traced out through their various developments in different tongues, are well enough in their place, but that place is not first. We would have not less of these, but more of the other; more rooting and grounding in the language itself; more "soaking" of pupils, if I may use the term, in the spirit of the noble tongues.

I am glad to know that the cloth upon my back has been gathered in parts from valley and hill; that animal and vegetable alike have

contributed to its completeness; that the worm has given of its bowels, and the bison of its horn; that one man has aided by cutting and another by sewing, and another by putting in his bill. But glad as I am to know all these things *about* the coat, the first thing I want of it is for it to *keep me warm.* And so I believe in the study of Latin and Greek, that the comparative steps and the elements of comparision that the teacher may give are well enough in their way and place, but the first thing to be sought is the mastery of the language itself, that the pupils may thereby claim the power arising from this study.

I am aware that this may be a little old-fashioned, and yet truth is always old. It is not the study of the clothes of man, but of man himself, that makes the physician skillful. It is not learning about language, but learning the language, that imparts power. As Mr. Whitney has said, "It is not easy to over-estimate the advantage won by the mind in the obtaining of a language. Its confused impressions are thus reduced to order, brought under the distinct view of consciousness, and within reach of reflection. An apparatus is provided with which it can work, like the artisan with his tools.[1]

There are certain great principles, or truths, which lie at the basis of all language, with which man has no more to do than the flail with the grain it threshes,—a means to an end. These laws are like those laws that push the stream down the hillside, and that lift it again in vapor, — above and beyond man, and yet to be known and used by him. Max Müller has said: "We might think as well of changing the laws which control the circulation of our blood, or of adding an inch to our height, as of altering the laws of speech, or inventing new words according to our own pleasure. As man is lord of nature only if he knows her laws and submits to them, the poet and philosopher become the lords of language only if they know its laws and obey them." So, the only way to gain this complete knowledge, the thorough discipline and the power which knowledge, backed by use and practice impart, is by a thorough rooting and grounding, a complete drinking in the language itself. It may not manifest itself immediately, nor have we a right to expect the full corn before the blade; but the way that has been trodden for hundreds of years, and the results gained not only by the progressive nations, but by progressive individuals in the nation, are not to be lightly passed by. So we believe not less in studying about the language, but more in studying the language itself; not less knowledge about the men that

[1] See *Life and Growth of Language*, p. 23.

used it, but more of that which they used; not less of polish, but more of power.

A second mark in which progress is to be made is in the thoroughness with which we teach and study the grammar. I am aware that this is one of the dry and uninteresting portions of the teacher's work, and pupil's as well; and because of its dryness, there has of late been a tendency to shirk it. Men have seen the length of time, the labor and strain spent upon it, and looking at the results seemingly (and indeed truly) meagre compared with that which ought to be obtained from the time and study, have hastily drawn their conclusions that the grammar itself, instead of the way in which grammar is taught, was at fault. This has led men into *extremes* in regard to sight translation and short cuts. Now, I believe as thoroughly as a man can in the value of *sight translation.* And, furthermore, I believe the teacher is sadly deficient who does not regularly and systematically train his boys in *sight translation,*—in the ready application of knowledge already gained, — and thereby not only increase the boy's enjoyment of his study, but give an invaluable habit to him as well. But the teacher who begins that work too soon, or who insists upon undue quantities of it, or who neglects grammar, the fundamental, for the other, the accomplishment, is neglecting the foundation of his structure for the finish and ornament, and time will show the weakness of his work. There is little use in frescoing a barn. Your foundation and your structure must be good and true before you begin to polish and to ornament.

Now, I believe that all this talk so prevalent to-day about boys "absorbing grammar"—of drawing their own conclusions and forming their own grammar, — is utter nonsense as regards Latin and Greek. I believe it is worse than that, — it is a dangerous fallacy that tends to destroy thoroughness; that undermines accuracy, and develops a slipshod and indefinite habit of study. It is all right *theoretically.* It is after the manner of certain men whose lives have been buried in cloister and hall, who have formulated their theories ot commercial laws and relations: a perfect theory, an excellent plan, where men are all perfect and circumstances are evenly arrayed. But the solid business-men, meeting life in all its phases as it is, do not accept it So these teachers have worked on the theory of *hungry* boys, eager to receive. But the truth is, the *taste* of the average boy has to be educated the same as his mind, and the perfect theory will not work. I do not believe in any other theory than a "grammar theory." I do not believe in any theory which cuts a boy loose from a definite and fixed aim.

So, further, I do not believe in these easy grammars or short grammars, but I would give a boy a reasonably complete work,—one clear in its statements (we have such), — and let him work in it. He may have difficult work for a time, but when he is done he is, or ought to be, *saturated* in the subject, and his mind have no uncertain sound. I would not be understood as claiming there is no room for improvement in our methods of *teaching* grammar, for I believe as thoroughly as one can in a growth in the way we impart the matter. But what I do claim is that there is no short cut or royal road to learning the foundation of these languages; that there must be a basis to the work, and that there is a progress to be made in the thorough, accurate, and complete inculcation of grammatical truths. The statistics gathered from the prominent colleges show that the large majority of the incoming classes are deficient in their grammatical preparation. And yet, in spite of the glaring fact, there are men who decry the study and scatter the efforts of the teachers. It is of such men that Fichte and Hegel could draw up their modest definition of human life.

This thorough and constant work in grammar, all through the preparatory course, need not absorb the time or monopolize the attention of the teacher. If done *aright*, it facilitates sight translation; it throws light upon the careful translation for the class; in fact, it lights up, consciously or unconsciously, the entire work. When we have a bright and cheerful fire, we think not so much upon the coal or the wood that really furnish the heat as upon the fire itself; and yet we must have the coal or the wood as material on which the combustion is to feed. And so it is also in our teaching. We may look for light, but there must be a source. We may look for heat and power, but they must have something on which to feed. We are apt to lose sight of the test of our strength and the object of our work. Accuracy is the true test of scholarship. For accurate translation, sight or carefully prepared; for keen and subtle distinctions; for the finer shadings that test the true strength of the mind, there must be a basis in an accurate, broad, thorough, and reasonably complete knowledge of the grammar.

The third point is, in our use of text-books. There is no subject, full of sense in itself, but about which more nonsense is talked, than the use of text-books in the class by the teacher or in the classroom. There are few text-books written that the fledgling just beginning does not think he can improve, and in confidence so informs his class. We find all classes and kinds dealing with the topic: the man who would banish the text-book and have all instruction

oral, making his class a void (aching?) which he is to fill. There are others who confine themselves closely to the book, — so closely that the class might almost as well dispense with the services of the teacher, so far as they are benefited by him. Now, you may talk about the personality of the teacher being above all books, and I agree with you. You may talk about his earnestness and the personal magnetism that makes a class thrive at the passage of a *living fact* from his mind to their's; and I admit it all, and with you cry out for more of such men.

But we must also remember some truths which appeal to us as facts tried by experience:

a. The text-book, as a rule, is not merely a compilation of the present time; it is a cumulative work, and represents, theoretically at least, the growth up to to-day. *b.* As a rule, also, these books are written by leaders in the profession, — men in whose class-rooms it is often a privilege for a man to sit; and the results of the labor and thought and experience of years are not to be lightly esteemed nor easily set aside. *c.* Furthermore, a text-book is usually not the result of one man's work alone; in it many minds and many class-rooms are speaking. Many experiments that have failed, and many that have been found practical by the actual test in the class-room, are, speaking in its pages; and just so long as our profession grows, as publishing-houses compete, and ambitious teachers seek for wider fields than the four sides of the school-room hold, just so long will our text-books increase in number, and, we hope, in power and point.

Being, then, such as it is, it is not, — or ought not, — to be a hindrance to the personality or magnetism of a true teacher. Indeed, it is a help. It saves his labor in certain lines, and gives him greater freedom in others. By giving him the cream, it saves him the labor of skimming. Theoretically, it presents just those points he needs to use, and shuns those he should avoid. It opens the field, but does none of the labor necessary for the teacher to do, nor does it deprive the pupil of the incentive of healthy action. You may take two men of equal enthusiasm and of the same marked character, who are anxious to build a house, and you may leave the one with his personality and supply the other with tools, and when you came to rent or buy, it needs no prophet to tell which house you will select. A text-book is not the work; it is a tool with which to work.

We have spoken of the ideal text-book, but candor compels us to say all books are not such. There are, as in everything else, good and bad. There are text-books that open upon a class with great guns of learning that shatter all the rising aspirations and

hopes in the classical line in the youthful head. Other text-books there are that are "nothing but leaves" and printer's ink. What we want in the line of text-books is not less learning nor less scholarship, but more books written from the boy's side of the question,—text-books not a wall nor a history, but a means by which the boy is to gain a desired end; in which obscurity shall not pass for profundity, and the ventilation of knowledge that does not bear on the subject in hand pass for breadth.

Now, there are in the classical work many books that are clean cut, clear, limpid, and lucid. To these every teacher needs to cling. In the selection of text-books, often there are so many elements entering in that the merits of the work itself is last in order. For a true growth this process needs to be reversed. There must be a careful study of the book on the part of the teacher before he decides on the one for his class; an honest comparison with the views and experiences of other men in whom confidence is felt, and a tenacious clinging to it when once chosen until the next step has been reached. The words of friends, the pressure of publishers, or the appeals of the committee, ought not to hinder a teacher from chosing the best book for his class. Think of it! the use of a text-book not abreast of the time, not clear as others of its kind, cumbered with matter irrelevant, in manner unattractive, inaccurate or illogical in arrangement. The use of such a book saps much of the energy of a class that ought, and that the class has a right to expect, should be transmitted into a power to fight and not to beat the air.

There are among all classes and conditions of men three divisions to be made: 1. Those who accept everything new; 2. Those who accept nothing new; and 3. The great body of progressive men between the two, who grow as well as hold. School-boards are apt to belong to the second class, and oppose everything new and refuse the use of progressive text-books. But every good thing has been met in the same way. Why, even when Edward Heming obtained letters patent to allow him the right of lighting London, and placed a light (an unheard-of thing) before every tenth door on moonless nights, from Michaelmas to Lady Day, and from six to twelve of the clock, he met with the most bitter opposition. Macaulay says: "There were fools in that age who opposed the introduction of what was called the new light as strenuously as fools in our age have opposed the introduction of vaccination and railroads; as strenuously as the fools of an age anterior to the dawn of history doubtless opposed the introduction of the plough or of alphabetical writing. Many years after the date of Heming's patent, there were extensive

districts in which no lamps were seen." And so the "lamps of learning," as shown by the best books, are often prohibited for the very same reasons Every teacher (on the theory of free trade of ideas) has a right to the best, and he ought to have it. Then there are books, progressive in suggestiveness, well arranged, well expressed, attractive in form and reasonable in price, and I claim a teacher has no right to deprive his class of the *best* of such. A child *may* learn to read by marking the letters on the sand with a stick, but few people are willing for their children to dig in this way. The classical subjects certainly furnish the best end; and to match the end we want, for progress, the best means.

There are many other means of progress of which I might speak; many where much improvement ought to be made. Among these, not the least are, *the gaining of a smooth-flowing English diction by means of carefully-written translations, sight translation, and by the study of etymology; and the gaining of a taste for history and poetry.*

But my time, as well as the scope of a single paper, compel me to be general rather than particular in what I say. The three points upon which I have laid special stress are the *saturating of a boy in the spirit of the language; the increased rather than decreased attention to grammar in its fundamentals,—to secure accuracy and a broad and firm foundation; and the selection of the very best text-books* as means to an end.

All our growth, to be sure, must be comparatively slow. The steamboat was not a momentary impulse; it was the result of many years' work. And so with most of the lasting good. Better the upward growth of the oak than the skyward movement of the rocket,—brilliant, but useless. I have little faith in these wonderful new means of teaching Latin and Greek save as an advertising medium. I do believe in a sure progress, but careful. Outside of the friends of the classics there is a tendency away from Latin and Greek, as there is away from religion. And within the lines are these friends (so-called) who may be zealous; but though they may kiss you in the warmth of their affection, it is well to keep the fifth rib guarded during the embrace. Just in proportion as we cut loose from the solid (though often hard and disagreeable) we lose. As with those nations that care the most for gewgaws and fancy trinkets, there is the lowest civilization, so with those teachers who have fancy displays and short cuts and new inspirations, there may be a lower scale of solid work. They have a display of classical pyrotechnics. The great field of language is ours. One of the most marvelous of all the miracles was the bestowal on the early Christian Church, on

a certain marked day, of not only the presence of the spirit but the wonderful power to speak with other tongues. Marcel has said: "It was by studying the works of their predecessors that the most distinguished authors learned to write"; and quotes a multitude of examples to prove his assertion. And when we see the results of their work in classical training in New England, and the influences that have radiated from its schools and colleges throughout the land, we may bend to our task with renewed energy, with renewed consecration, but not like those ancient Homerics (*οἱ ἀρχαῖοι ὁμηρικοί*) of Socrates' time, and before, of whom Professor Monro, in the *Encyclopædia Britannica*, has said: "They busied themselves much in the hidden meanings of the great poems"; and of whom Aristotle said, "They see the small likenesses and overlook the great ones." Let us remember, for progress it is necessary to prove all things; but not less necessary to hold fast to the proven good.

ORAL INSTRUCTION.

BY MISS ROSE C. SWART,
Supervisor of Practice and Lecturer on Methods at the State Normal School, Oshkosh, Wis.

We see many evidences to show that the question, "Is there a science of education?" is regarded as answered in the affirmative. Among these evidences is the fact that teachers are everywhere earnestly inquiring concerning the nature of methods of instruction and their adaptation to the needs and capabilities of the child-mind.

A method of instruction is coming to be regarded as an instrument nicely fitted to do a certain work in the hand of him who is skilled in its use; and it is conceded that no one can be thus skilled who does not clearly understand the character of the work to be done, the character of the material to be worked upon, and what it is possible to do with the tools with which he works. Oral instruction is, then, a means wherewith the teacher may bring about certain results within the mind of a child, thereby influencing the character of the child, and, through him, the character of society.

Viewed in this light our subject can never sink into insignificance; and though it has been for many years a topic of discussion, it will continue to occupy the thought and exercise the judgment of teachers so long as the question of the adjustment of means to ends in education is an open one.

Oral instruction is sometimes considered a creation of the New Education, and, if not exactly that, it is at least a valuable, and heretofore neglected, inheritance from the past, now for the first time made probably fruitful through the recognition of its value and introduction of its use by this recent reform movement in education. If we need a proof of its effectiveness, we have but to consider that it has been the method of the greatest teachers from Socrates to Agassiz.

Guided by the purposes of a good heart and the intelligence of a cultivated mind, the living lips of an earnest teacher speak living truths with a force and adaptation unknown to books. This fact the New Education with its clear insight has recognized and emphasized; and whereas the Old Education magnified the office of the text-book, the New Education regards it as in many cases an obstacle. Now, it is a matter of common experience that "one extreme follows

another." In the language of Prof. W. H. Payne,—"Where one phase of a complex truth has so engrossed attention as to obscure a complementary phase, and thus to introduce obvious errors into practice, there is a recoil toward the neglected truth, and so toward errors of an opposite character." How to rid ourselves of the obvious errors of an ill-advised use of the text-book, on one hand, and not to fall into errors equally ill-advised in the use of oral instruction, on the other, is the problem.

The moment systems of education are set in motion, earnest and able teachers are necessary to their efficiency, — teachers who will study the past to draw lessons from its experience; who will question the present to discover its tendencies, and the future to supply its necessities; who will exert themselves to understand the nature and needs of children; and who will investigate the character of methods, and wisely and successfully adapt them to the accomplishment of the end in view. Let us in this spirit consider the subject of oral instruction, and determine its character, aim, methods, and use.

To know the nature of instruction may help us to understand the character of oral instruction. To instruct is to build up within the mind; hence instruction should not be regarded simply as a means of furnishing matter from which the self-directed child, by a process of natural selection, may gratify his intellectual desires; but, on the contrary, while it furnishes the mind, it should also form and discipline it. It should look upon education as a natural process, advancing under the guidance and authority of teachers toward ends helpful to society. The effectiveness of instruction depends upon the method of the instructor.

Oral instruction is that method by which the first presentation of a subject is made through the lips of a teacher. Its leading idea is instruction without a text-book; and, as used here, it is a method entirely distinct from that of the formal lecture, and also distinct from the object-lesson in the technical sense of that term. In order to be effective it must possess at least four qualities: it must accord with the natural laws of the intellectual development of man; it must arrest the attention and awaken the interest of the pupil; it must keep in view the aim and end of education; and it must determine its own particular aim as a factor in the production of the whole result.

The central idea of oral instruction should be the child, the subject taught being held valuable only in so far as it ministers to his needs. But since it should always be so chosen as to supply some need, it follows that he should receive a clear and accurate idea of

the elements of the branch in which instruction is given; that is, it should be the teacher's distinct purpose to put the child in possession of useful and correct information. This marks the furnishing of the mind; or, in other words, the getting of knowledge, as one aim of oral instruction.

But one of the chief sources of knowledge is books, which are and must ever be indispensable in the work of education. They embody the accumulated wisdom of the past, and the gaining of power to get out of them what is in them must ever be the chief business of the schools. Why, then, invent a method that discards the book? because the most important thing in the education of young children is the formation of right mental habits,—the training of the mind as the instrument of thought; and a child set down to con his lesson from a book, with no previous instruction, and the knowledge that soon he must recite the contents of the page before him to one who will accept just that and nothing else, does not form right mental habits. He accepts passively the authority of the book, and his only endeavor is to fix its statements in his memory. This is the abuse of text-books. It is a method that makes no attempt to arouse the pupil's interest, to stir his imagination, nor to exercise his judgment. It leads him on no quests, and conducts him to no goal. It is a benumbing process; and no wonder it has borne heavily on both teachers and pupils. In place of this barren method, oral instruction does its true work.

Making the child, not the branch, its central thought, it adapts itself to his native mental conditions and needs. It includes both perceptive and conceptive training. Beginning with the former in the teaching of young children, it proceeds with older ones upon the principle that they have already acquired in various ways a store of simple and concrete conceptions upon which the teacher may draw to form more complex and abstract ideas. Hence it definitely aims to stir the imagination, without which there can be no genuine ardor in any pursuit. To this end it endeavors to arrest the pupil's attention and arouse his interest; it calls upon him to use his eyes and ears, and trains him to accurate sight and to the power of conceiving vivid pictures. It aims, by virtue of a certain intellectual excitement, to impress these pictures upon the memory. It aims to cultivate the will; and with this in view, endeavors to create an appetite for the things of the understanding, and to present motives that will stimulate to self-activity. It aims to teach intellectual self-reliance, correct judgment, and, in the language of Pestalozzi, "to develop the reasoning faculty from the reasoning tendency in man." For this

purpose it brings the pupil in contact with things and facts, and causes them to teach him with their irresistible logic. It furnishes datas, but calls upon him to draw conclusions. It aims to make the truth of these conclusions an inevitable necessity in the nature of things, and so to preclude the possibility of error or prejudice. To this end it founds the recognition of truth on carefulness of observation and true perception, and thus teaches exactness of thought, independence and reserve of judgment, an interest in truth for truth's sake, and a desire to maintain it under all circumstances. These aims may be summed up in the one word, *training*. Therefore, oral instruction makes it its purpose to add to knowledge, power, and to power the disposition to use it in right directions.

The accomplishment of these aims will depend upon the method of the instructor. What is wanted is not flowing presentations by the teacher that tickle the ears of pupils for the time and leave no lasting impressions behind them, but close seeing and thinking on the part of the pupils, and free and accurate expression of their thought; that is, while the lips of the teacher are the necessary medium through which the lesson comes, the teacher should not therefore degenerate into a mere *teller*. To take thought and expression ready made from the teacher no more strengthens and develops the mind than to take them from the text-book. It has been truly said, "If an oral lesson has not resulted in making pupils think thoughts that they wish to express, it might as well be considered a failure, and the language side of the lesson be omitted." It is the teacher's part to choose times, to select the subject-matter, to stimulate the pupil to take hold of it, to give tone and direction to the mind, and then to remain silent, regarding with sympathetic interest the growth of the ideas he has implanted until they develop logically from within; giving them time to grow in the self-active mind of the learner until they are sufficiently clear to be expressed; to borrow a phrase from Socrates, "sufficiently advanced *to be born*." And now, if we add expression to knowledge and training, we have formulated the aim of oral instruction.

In so doing we shall find that we have also determined the path by which to reach it. This path is the method of discovery, which, by appealing directly to the pupil's experience, commands attention and excites interest, and which proceeds upon the well-known principle of intellectual development, — "The genesis of knowledge in the individual must follow the same course as the genesis of knowledge in the race." In accordance with this principle the method of discovery conducts the pupil by the processes of inference and induction

from the examination of particular facts to the conception of general truths. It aims to put him in possession of real knowledge through personal experience, and therefore begins with concrete examples and leads him, by way of observation, comparison, and reflection, to see for himself the principles of classification and logical definition. It places the teacher upon the stand-point of the learner, and by skillful questioning throws the burden of thought upon the latter. In all these respects it answers the requirements of effective instruction. It is, however, limited in its application; and the limits of this method mark, in my opinion, the limits of the distinctive use and peculiar value of oral instruction.

First: the application of the method is limited by its own nature. If continuously applied to instruction in a given branch it would require an extreme length of time, and expend the pupil's energy without any advantage to him in finding out by the slow process of investigation and experiment that which the world knew long ago, and which the student is entitled to know as "the heir of all the ages."

Second: since it aims at the formation of right mental habits and the correct expression of thought, its application is limited by the mental condition of the pupil. When right mental habits have been established; when a good degree of power in the correct use of language and skill in its interpretation have been obtained, the supreme necessity for oral instruction is over; though it may always be to a greater or less extent advantageously employed in introducing pupils to new sciences or special topics.

Third: the use of the method is limited by the nature of the subject to be taught. It is, for instance, inapplicable to such a subject as history, where everything is to be taken on authority. It is, of course, true that teachers can tell many entertaining and instructive stories from history, and these have their use; but as already stated, *telling* is not the peculiar province of oral instruction. "The pith and marrow of its attribute" is an entirely different thing.

Since the nature of the subject decides in part the question of the use of the method, it becomes necessary to determine the subjects to which it is applicable. Among those that should be systematically developed by the method of oral instruction is mathematics, in the two directions of form and number. Instruction in regard to form should include the observation of solids, surfaces, and lines, and should aim in the formation of habits of exact classification and definition. Oral instruction should begin with number in the concrete, and deal with it not as a science, but as a property of things.

Its immediate aim should be to awaken the pupil's conception of numerical value and operation. With this design, according to Mr. Currie, "we should appeal to the child's experience of number; we should show him numbers differing from each other in certain ways, and thus give him the idea of relative value; we should take numbers with whose value he is acquainted, and increase or diminish them variously, that he may see what is meant by numerical operation. We should turn his attention on his own experience, and lead him to infer from that what it is that he is working with and how he works." In all such exercises the pupil is called upon simply to state what he sees. On account of the great efficiency of this method teachers are prone to protract the use of objects beyond the point where it is valuable, and so keep the child at a mental stand-still, expending time to no purpose. This training of the perceptive powers is given only as a means to an end, the end being the exercise of independent thought; hence it follows that there comes a time when it is necessary to lay upon the child the obligation to think without objects. At this point the teacher's aim changes; from the training of the perceptions he turns to the development of the reasoning faculties, and calls upon the pupil to understand conditions, to determine operations, and to originate intelligent explanations in good language and general terms.

As already stated, the expression of thought is one great aim of oral instruction. The expression of thought by means of lines is drawing, for the teaching of which this method is eminently adapted. If drawing is, as has been said by high authority, "a graphic language by means of which one person expresses to another what his eye sees, or his mind conceives," it follows that there is but one true drawing, — that is from objects, or from one's own mental images; and that all copying of other people's drawings falls short of this true character. As often taught, drawing is merely copying, and trains the mind to nothing more than the correct apprehension of outline, proportion, and direction, as originally determined by some other mind. It cannot be justly claimed that such work embodies the learner's thought; neither does such teaching put him in possession of a new language. If a child has great natural aptitude for acquiring this mode of expression, he may do so in despite of bad methods of teaching; but, in that case, the result should not be credited to the schools, where, on the contrary, drawing should be so taught as to be, like writing, generally and practically acquired. In my opinion, the plan of copying drawings already made will never succeed in producing these results, and is largely responsible for the

meagre character of those up to this time obtained. Though not the same in degree, the difference between this work and that which might and should be done is the same in kind as that existing between the art of the mere engraver and the art of him who could conceive within the mind the marvelous power and beauty of a Sistine Madonna, and by his ability to express that conception, could change a piece of canvas into an inheritance valuable to a world. In order to draw, one must think in *things;* this can only be done by a perception of the forms of things and the power to represent those forms as they are, or as they appear.

It should, then, be the teacher's first aim to train the pupil to a true perception of form; to this end, the object to be drawn should be placed before the child, and by skillful questioning he should be led to see the fundamental form upon which it, or any part of it, is built. Secondly, he should be called upon to abstract that form and conceive it in the mind as distinct from the object. Third, he should be required to exercise his judgment in determining how that form is to be represented by means of lines, so as to clearly convey his own ideas of the object before him to the understanding of another. And, finally, his hand is to be trained to execute, in accordance with principles the judgment approves, either with aids or on a clean field, the picture his mind conceives. This gift of a language gained through the eye can only be imparted by the method of oral instruction. This method is also highly useful in training pupils to habits of correct expression in speech and in written composition; but of the details of its use in these directions it is not my purpose to speak.

A complete training in language, however, includes not only the power to express one's own thoughts, but also the skill in interpreting the language of others. The teacher who aims to impart this skill should take account of the spontaneous process by which children ascertain the meaning of an unfamiliar word after they possess a vocabulary sufficient for understanding the drift of ordinary language. On first hearing or reading such a word, they judge from the connection what it means. Mr. Bain, in the "Appendix" to his *Education as a Science*, says, "There is no better test of the general understanding of a passage than the ability to guess from it the likely meaning of an unknown word." Teachers should deliberately employ this natural method of interpreting language, and, by skillfully chosen instances of the use of the word and by examination of the context, should lead the pupil by a process of inductive comparison to discover for himself the meaning of unknown terms.

The application of the method of oral instruction to all natural

science studies, to geography in all its physical and mathematical aspects, and to lessons in color, is obvious, but time forbids further discussion under this head.

And now, to sum up our conclusions: this consideration of oral instruction shows that while it has its limitations, fixed in part by the nature of its own method, in part by the nature of the subject taught, and in part by the mental condition of the learner, it is, nevertheless, of supreme necessity in certain stages of mental growth, and that the field of its usefulness is broad. And we see, further, that the highest art of the teacher must ever be exercised to choose its times, adapt it to the fulfillment of its aims, and determine its due proportion to text-book instruction at any given time and in any given subject. Finally, the teacher's success with the method must ever be tested by its results. If it trains pupils to earnestness of purpose, topainstaking effort, to clear seeing, logical thinking, and the correct expression of thought, to active seeking after the things of the understanding and the things that are true, it has achieved its purpose; but if indifference, sluggishness, mental and moral weakness exist under it, unmoved to something better, it falls short of its aim, and counts for little or nothing except to swell the record of time spent in vain.

REPORT ON GEOMETRY.[1]

I. — REASONS FOR STUDYING GEOMETRY.

1. The study of geometry should be pursued partly for the *pleasure* to be derived from it This is by no means the most important motive for the study, yet is one which should not be overlooked. It is placed first because from the very beginning the teacher should aim to impart, and the pupil should expect to find, pleasure in the study; while, in fact, the opposite is apt to be the case, owing to the mistaken impression that geometry is hard and uninteresting except for those who are said to "like mathematics." This report will aim to indicate how geometry may be taught in such a way as to prove a source of pleasure as well as profit to the average scholar.

2. Geometry should be studied for the sake of the *facts* which it communicates. These facts are of the utmost importance to the furnishing of a well-equipped mind. Acquaintance with them is necessary not only to successful work in some of the most important departments of applied science, but also to the proper understanding and appreciation of much that is constantly going on about us in the physical universe. That these facts, apart from their beautiful or sublime applications in human workmanship or in nature, are so often regarded as "dry," is doubtless because they are in themselves entirely void of any moral significance which we can discover. This should be freely recognized, and no attempt should be made to awaken interest in them by ill-judged praise which is liable to provoke a smile by its apparent inappropriateness.

3. The most important reason for the study of geometry is that it furnishes unsurpassed *mental training*. The characteristic features of this training are that it cultivates (1) close attention, (2) orderly arrangement of thought, (3) concise expression, (4) pre-eminently the reasoning faculty, and with it (5) the habit of questioning much that passes among people as "proof." The importance of the first four will be admitted by all, and that of the fifth can hardly be doubted when we consider how much of that which we hear and read, and which passes among men as "argument," is nothing but a collection of statements among which a trained reasoner searches in

[1] Presented to the Maine Pedagogical Society at Rockland, May 16, 1884, by Prof. C. H. SMITH, of the Committee on Mathematics, Bowdoin College.

vain for any logical sequence. Whenever a man says "therefore," the mind of the listener should be trained to ask instantly whether the conclusion follows from the premises; and it is so trained in an eminent degree by the precise methods of geometric demonstration. This may be said in general of all mathematical reasoning; but elementary geometry (which alone is considered in this report) has this advantage over other branches of mathematics, that it deals less than they in symbols which are foreign to every-day life and thought.

II. — METHOD OF TEACHING GEOMETRY.

It is assumed as a matter of course that we are not content with merely hearing recitations, but are faithfully trying to mold the minds of our pupils by our personal contact with them and influence over them. Our methods must therefore partake so largely of our own individuality that the following suggestions can be regarded only as a general ground-work upon which each may build for himself.

1. *Difficulties Encountered.* — It is very desirable that children should have their attention systematically directed to geometric relations at an early age. This is often neglected until the time has gone by when a child can naturally be expected to take an interest in the easy manipulations of dividers and ruler, and in discovering the simple relations of lines, angles, and areas in the figure he has drawn. Then when the study of geometry is commenced, the scholar is given a text-book, and is set to work at once learning demonstrations How does he regard this work? For one thing, it is all very new. The statements are new. Though he may have had, and doubtless has had, some chance acquaintance with certain facts and relations, he has never had his attention really directed to them. Then, too, the way of getting at those facts is new. His previous mathematical training has not prepared him for it; for in arithmetic, and largely in algebra also, formal proof was reduced to a minimum, and his attention was mainly directed to frequent applications of rules committed to memory. He is thus required to work upon new material in a new way; that is, to master two things at once. This double burden should, in general terms, never be imposed upon a beginner.

What is the outcome of this method of beginning the study? In many cases the pupil soon discovers that the elementary facts are pretty obvious on inspection; and as he supposes that the object of the study is merely to get at those facts, he naturally contents himself with getting at them in the easiest way, and then memorizes the

demonstrations simply as something he has to recite. It has doubtless happened in the experience of all of us who have taught geometry, that upon asking a pupil his reason for a statement we have received for answer, "I can see it is so"; or, "It must be so"; and then we have discovered that he has all along been arriving at conclusions by processes quite apart from those of the printed demonstrations, and has been committing the latter to memory with very little idea of what they were all about.

It is believed that this strong tendency of the youthful mind to arrive at conclusions without formal demonstration can be utilized by giving it a recognized place in a course of preliminary training, as follows:

2. *Preliminary Training.* — At the start, place in the hands of the pupils paper, pencil, dividers, ruler, and square, and set them to drawing figures. Always insist upon neatness and a reasonable degree of accuracy. They will not respect work in which they are allowed to be careless and untidy. Then by judicious questions and timely hints, set them to thinking about the figures they have drawn, and noticing the relations of different parts to each other, and so lead them on to make discoveries for themselves. Let them at first arrive at conclusions in the simplest way, with no attempt at formal demonstration. The proofs at this stage will be largely mechanical, as by measurement of lines and superposition of figures, the object being to awaken interest and store the mind with facts for future use. At the same time, the teacher should be on the alert to draw the attention on from relations which are obvious to those which are not so readily seen. With a young child, this stage in his geometrical education may profitably be continued some time. With an older pupil it must be brief, lest he take a dislike to that which seems to him childish; yet it should be continued long enough to ensure his being on partly familiar ground when he starts in formal geometry.

The success of this preliminary training which has been briefly sketched will obviously depend mainly upon the teacher, and will make large demands upon his resources. But much help may be derived from G. A. Hill's *Geometry for Beginners*, Mault's *Natural Geometry*, and Spencer's *Inventional Geometry*.

When a pupil who has had such a course of training commences the study of formal geometry, he has the advantage of some familiarity with the subject-matter, and can give his undivided attention to the new method of proof. This not only makes his task easier, but also adds zest to it. It is pleasant to meet old friends in new surroundings. We all know the pleasure with which we recognize in a

quotation some familiar passage from an author whom we admired in our school-days. So with our pupil; the interesting facts which he formerly established to his own satisfaction in childish ways are now found to be capable of proof by a new and more excellent way, which calls into inspiring activity his newly expanding powers of reason. Moreover, he sees that the aim of the science (at least in its early stages) is not by a round-about method to convince him of a few simple things which he knew already or could easily have ascertained, but rather to arrange them in a certain order, so as to show their relations to each other; and with this comes the discovery that what he learned before as isolated facts are all bound together in a vast and perfect system in which each has its appropriate place, and this discovery is itself an inspiration.

3. *Use of Text-Book.* — When a pupil begins the study of formal geometry with a text-book, whether he has received preliminary training or not, a few rules should be laid down for his guidance and insisted on by the teacher.

(1) Always commit the *caption* thoroughly to memory. Do not be afraid of learning the exact words of the author. The statement of the caption is the result of much careful thought and you are not likely to improve it. Fix it in your memory so that you cannot forget it for some time to come. You will have abundant occasion to use it hereafter. A ready command of all the captions you have left behind you will prove, as you advance, a great saving of time, and may turn the scale in favor of making your study a delight instead of a drudgery.

(2) Learn the *numbers* of the propositions if you can do so without an excessive expenditure of time and labor. Much of the extra time required for this will be repaid when, as you advance in the study, you find you can recall a proposition instantly on seeing it referred to by number. The additional labor involved will also bear fruit in a more thorough mastery of the subject.

(3) Never commit the *demonstration* to memory; that is, however closely you may in fact conform to the wording of the book as a model, never set out to learn it by rote. The *figure* is the object to which your attention should now be mainly directed. Study the figure thoroughly until its different parts suggest to you as a matter of course the different steps of the proof in their proper order.

(4) After you have become thoroughly familiar with the figure as it is given, consider what changes you can make in its form without changing its essential character. Thus, if an acute angle occurs in the figure, and no use is made of it as such in the demonstration, see if

you can draw a figure which has an obtuse angle in place of the acute angle, and yet will answer the purpose of the demonstration. This is a useful safeguard against making the proof depend upon accidental features of the figure.

4. *Instruction Supplementing the Text-Book.* — As implied above, the use of a text-book is recommended; for it is believed that an immature mind receives from the printed page a definite impression which oral instruction alone can not give, except at a great outlay of time and patience. A text-book, judiciously used, saves the teacher's tmie, which can be spent in supplementing the book much more wisely than in supplanting it. The remaining suggestions are for the guidance of the teacher in this important work.

(1) Show the pupil how to analyze a proposition. Point out to him that every theorem consists of three parts, — hypothesis, proof, and conclusion, — the first and third being brought together for convenience in the caption, the proof coming afterward, out of its logical place. Point out also that a direct demonstration proceeds by steps, each of which consists of three parts: first, something that he notices in the figure; second, a general reference which he is thus reminded of; third, a specific conclusion in the figure authorized by the reference.

For instance, in the course of a demonstration there is occasion to prove that two triangles are equal. What do we already know about these triangles? We know, for instance, either by hypothesis or construction, or by previous proof, that two sides and the included angle in one are equal to two sides and included angle in the other. This is what we bring to mind first, and it constitutes the first part of the step. No sooner do we think of this than we are reminded of the fact that we have already proved, in a previous proposition, that whenever two sides and included angle in one triangle are equal to two sides and included angle in another triangle, the two triangles are equal. This is the second part of the step. It remains to apply the general conclusion of this reference to the figure before us, and so we state specifically, "therefore these two triangles (naming them) are equal."

A little reflection will show that this is the logical order of thought, and if it is pointed out to the pupil it will give him a far better idea of what constitutes a demonstration than he will be likely to obtain if left to himself to "learn the lesson." Careful instruction by the teacher is necessary here, for the text-books do not observe this order. Sometimes the conclusion is mentioned first, and then as a reason for it the reference is given, omitting all mention of that

in the figure which suggested the reference and so led to the conclusion. Sometimes the reference is given simply by number on the margin of the page. Doubtless it is necessary to save room and expense in printing. But any disarrangement of the logical order is unfortunate for the beginner, since it obscures the true nature of a process which he does not yet understand. Yet there is an advantage even here; for when his attention has been directed to the analysis of a demonstration, he will take pleasure in re-arranging the one given in the book and bringing to light its real symmetry.

(2) Open up to the pupil broad views of the subject, by showing him how a theorem may be stated in general terms, so as to include several propositions, which are given separately in the book, with no intimation that they are closely related. Certain properties of chords, secants, and tangents to a circle may thus be grouped. Also point out to him, what frequently occurs, that an elementary theorem is but a special case under a more general one which is met with later, or that it may be deduced by imposing certain conditions in propositions, which are apparently quite unrelated to it. Thus the famous property of a right-angled triangle, that the square of the hypothenuse is equal to the sum of the squares of the other two sides, may be readily deduced from certain general properties of triangles and inscribed quadrilaterals. Such exercises will be found both interesting and profitable.

(3) Give dictation exercises in which the pupil is required to draw a figure from your verbal directions, then to answer questions about it. Aim at securing such full description on your part, and such close attention from the pupil, that no direction will have to be repeated. The following is a specimen of such an exercise:

Draw a horizontal line 25 mm. long and letter it AB, placing A at the left and B at the right. Bisect AB at C. Draw BD upward, perpendicular to AB, and make it equal in length to AB. Bisect BD and E. Join AE and DC, and place F at the point were they intersect. Join BF.

Several questions may now be asked about the figure, thus: "Does BF appear to bisect the angle ABD?" (If the figure was drawn correctly the answer will be "Yes.") "Prove it." "Does the proof depend upon the fact that ABD is a right angle?" "Draw a figure which will be essentially like this, but with ABD an acute angle." "Does the proof depend upon the particular length given for AB?" "Draw a figure with AB of any length you please, and with ABD an obtuse angle." "What are the essential feature of figures in order that ABD may be bisected by BF?"

"Does this exercise suggest a way of bisecting *any* angle?" Now take any angle contained by lines of unassigned length and bisect it by this method.

(4) Require of the pupil original demonstrations of theorems, furnished for the purpose. These thorems should be carefully selected, so as to test the pupil's ability to demonstrate rather than to invent. They should at first be comparatively easy, and not at all puzzling. The demonstrations should be written, and adherence to logical order of thought should be required. In fact, this exercise bears to the teacher's previous instruction somewhat the relation of fruit to planted seed. In it the pupil has an opportunity to exhibit some of the most important results of his geometric training; *i. e.* close reasoning, orderly arrangement of thought, and concise expression. All these should of course be insisted on by the teacher. The following is a specimen of such an exercise. The teacher furnishes only the caption; the pupil separates it into hypothesis and conclusion, draws the figure from the description given in the caption, then discovers and writes out the proof, which here contains four steps, the three parts of each step being separated by semi-colons. The references are to Loomis's *Geometry:*

CAPTION.

(*Hypothesis.*) ABC is an isosceles triangle with AB and AC the equal sides; CD and BE are perpendicular to AB and AC respectively, and intersect at H.

(*Conclusion.*) Prove BH = CH.

PROOF.

[1] CDB and BEC are right angles by hypothesis; but it has been proved in I., 1, cor. that all right angles are equal; therefore CDB = BEC.

[2] The triangle ABC is isosceles by hypothesis, and ABC and ACB are its base angles; but it has been proved in I., 10, that the angles at the base of an isosceles triangle are equal; therefore ABC = ACB.

[3] The two triangles BDC and BEC have the angle BDC = BEC as proved in [1], and DBC = ECB as proved in [2]; but it has been proved in I., 21, cor. that when two triangles have two angles of the one equal to two angles of the other, the third angles are also equal; therefore DCB = EBC.

[4] In the triangle BHC, the angles HBC and HCB are equal, as proved in [3]; but it has been proved in I., 11, that when two angles of a triangle are equal, their opposite sides are also equal; therefore BH = CH, which was to be proved.

(At first it will be well to have the demonstration written out quite fully with little or no use of symbols, the exercise being regarded mainly as one in composition. Indeed, its principal value depends upon the fact that it is a full and conclusive *argument*, the fact that it is geometrical being incidental. Later, abbreviations by use of symbols or otherwise may be safely allowed, and become desirable when the demonstration is a long one.)

THE ARNOLDS AS EDUCATIONISTS.

BY WILLIAM SOLEMAN, ENGLAND,
Author of *The Rector of St. Judy*, *Songs from the West*, etc.

Those who happen to visit the city of Oxford for the first time during the long vacation cannot help declaring that it is one of the dullest towns in England. The architecture of the place is interesting in its way, but it is the architecture, for the most part, of Mediævalism, and the citizens seem to be infected with that dull decorum which is supposed to become the inhabitants of a city that supplies the great majority of English parsons. But when the long vacation is over, Oxford becomes itself again. The "High" looks as only that famous street can look, when gown jostles town on a bright October afternoon. The young bloods are back from their amusements in the country, and the Dons have their work cut out for them. What labor! what trouble is in store for the Dons! Heaven only knows what Oxford has done. And then just consider what money the university has to spend in the course of a year. When a boy goes to Eaton or Rugby, he gets a foretaste of Oxford; and how hard he has to work at Eaton or the other great public schools! It is true that, thanks to the saints, he gets a good many holidays and half-holidays. "But," says the admirer of things as they are at Eton or Rugby, "such days and eves don't come every week." No, they don't; but, for all that, there is always a day and a half out of every six so-called working-days given up to amusement and recreation. So that, taking the weeks wherein the saints are so much honored, with the holidays and half-holidays given in the weeks wherein the saints are not particularly honored, it may be safely affirmed that the boys of Eton, Rugby, Harrow, etc., before they go to Oxford or Cambridge, have to labor three short days out of seven! And in this respect matters have not improved since Dr. Arnold became head-master of Rugby some forty-four years ago. As an able and conscientious schoolmaster, he set to work with the intention of bringing a nobler spirit into the school, and to a very great extent he succeeded. In the first place, he recognized the truth that there is no influence so good as the influence of home. He tried to make Rugby as much like an English Christian home as possible. Thomas Arnold did not rely on the inculcation of catechisms and formal creeds for this purpose, but aimed at exemplifying in his own

life the beauty of goodness and truth. The late Dean Stanley was among his most promising pupils, and the Dean always maintained that no boy, no matter how bad his disposition or early training, could come into personal contact with Dr. Arnold without being morally benefited. And it must not be forgotten that Rugby, for generations previous to the appointment of Dr. Arnold, had been conducted in the old brutal manner that Porson used to speak of,—the fagging, the flogging, the exposure of boys' bare buttocks to the school-room fire until the burnt skin peeled off; and even up to a much later day it was the custom at several of the great English public schools to flog young men of eighteen or nineteen at stated times in a most indecent manner, and in the presence of such members of the public as thought fit to attend.

These were some of the evils which Dr. Arnold had to contend with at the outset of his career as an educationist. But there were other evils, lying being one of the most terrible of them. The school was organized then very much as the great English public schools are still organized, and the methods of teaching were most irrational and absurd. It has already been shown that the number of hours weekly devoted to instruction was not long, and yet a very large proportion of them was devoted to the manufacture of Latin verses as a mere exercise in the use of the various metrical feet! Could anything be more absurd? and will it be believed that the practice is almost as prevalant now as ever? Lads trained under such circumstances cared nothing for the real beauties of Latin and Greek. They laughed over the prodigies of the gods and goddesses, and learnt far too much of the indecencies of some of the classical writers. Very few of Dr. Arnold's pupils, when he first took charge of Rugby, were able to write a short, sensible letter in their mother-tongue, and the outlines of English geography or history were unknown to them. They had no *taste* for learning, and it was this taste, both for worthy knowledge and nobleness of action, that Dr. Arnold tried to inculcate. He succeeded to a very great extent; and although he cannot be called a distinguished master of the science of education, Dr. Arnold will long be remembered as a great English schoolmaster, who exercised a wonderful influence for good over the many hundreds of lads that were educated at Rugby during his too brief career. Thanks to the name he made, and the influence he exerted in high quarters, two of his sons became intimately associated with the progress of English education, and have abundantly proved that their abilities were quite equal to the demands of the positions they were called on to fill.

In one of those delightful essays which Mr. Matthew Arnold contributed to the pages of *Macmillan* a few years ago, he quoted from a Latin writer the words, *Da mihi, Domine, scire quod sciendum est.* And this thirst for clearness of knowledge seems to have been one of the chief desires of his life. Educated at Rugby for a short time, he went to Oxford, where he was known and valued as a student who exemplified in his own person that "sweetness and light," blended with an elasticity of character, which showed that Mr. Arnold had closely studied the best types of Greek life, which has since become proverbial in connection with his name. His whole career, from the day he left Oxford to become private secretary to the father of the present governor-general of Canada, has been one worthy of the son of Dr. Arnold. Without being an actual teacher in a school, Mr. Matthew Arnold has had more to do with the progress of English education than any man living. His contributions to the literature of education have been enormous. Apart from his numerous books and essays on general matters, he has for more than thirty years been sending to the Educational Department occasional reports on the progress of English education, and many of these reports have contained valuable hints as to what education, in its best sense, should be. He has often addressed English teachers on the best methods of instruction, and although Mr. Arnold does not carry the love of theory to any great extent, his reports and addresses have always been marked by a clearness and directness that are truly admirable. As a writer of English he is *facile princeps;* and although his speeches were marred by a certain aristocratic drawl, his visit to America cured that defect, and English teachers are very thankful for it. He has been an inspector of schools for nearly thirty years, and during nearly the whole of that long period London has been the scene of his labors. Successive governments have sent him on missions to France and Germany for the purpose of reporting on the methods of instruction there prevailing, and his last report on the state of French primary instruction is a most interesting and valuable document. But his great reputation as an English poet and critic quite overshadows his contributions to the work of education; and I should like to devote the remaining portion of this short paper to a brief notice of his younger brother, Edward, who died a few years ago.

Educated at Rugby and Oxford, Edward P. Arnold took orders in the English Church; but a certain distaste for dogmatic theology kept him from actually entering on the work of a beneficed clergyman, and he, too, became an inspector of schools. This was long

before Mr. Forster's act made English elementary education almost universal, and for fifteen or sixteen years before that act became law, Mr. Edward Arnold was the sole inspector of the two great counties of Devon and Cornwall. Nearly all his schools were the voluntary ones connected with the Church of England and many parishes in his district, up to 1870, had nothing but dame schools. There were a few good undenominational schools under his inspection; but to show what a difference Mr. Forster's act has made, it may be stated that what was Mr. Arnold's district is now inspected by four chief inspectors, besides sub-inspectors. He lived nearly eight years after the passing of the law which has given public elementary schools to every parish in England and Scotland, and he did not relinquish his work till a few months before his death in April, 1878; and no one rejoiced more at the prospect of universal education for the English people. He was only 51 at his death, but for more than twenty years he had taken a lively interest in the education of the masses. It was delightful to see him examine one of his schools. Strong-looking man as he was, he would stand before a gallery of infants and test their little knowledge in a most enjoyable manner; and as the State at that time had not forbidden inspectors to examine in Scripture, it was a treat to hear him expound the great doctrine of our common Christianity to a class of ignorant children. His reports to school-managers were not mere records of what the children knew, but they contained valuable hints; and without being officious or pragmatic, he was a true instructor of teachers. There was a largeness and nobility of spirit about the man that could not but remind those who knew him well that he had been brought up at the feet of Dr. Arnold, his famous father. When an insidious illness kept him from further work, he retired to Fox Hood, Ambleside, in the Lake district, where his father had died so suddenly in the prime of life. There, lovingly attended by his sister Frances, Edward P. Arnold fell asleep after the performance of a faithful and high-minded work. To quote from a letter which the writer of this paper received from Miss Arnold after her brother's death, "Thoughout his long and suffering illness he never ceased to think with affectionate interest of the teachers and scholars amongst whom he had lived so long. In the extreme weakness of his closing days, he sometimes seemed to fancy himself in the schools, and we could make out that he was speaking to the children when we could not tell what he said. It is a true comfort to us, in our great loss, to know he was so loved and honored, and will be remembered in the west of England."

The official reports of both Matthew and Edward Arnold for years

previous to the passing of the act of Mr. W. E. Forster (who married their sister Jane) were constantly bringing before the English government the dire necessity of providing the people with good education. The prevalence of crime and vagrancy and immorality; the almost universal ignorance of criminals and vagabonds; the number of marriages where one or other of the parties signs the register with a mark; the inferiority in information of the laboring classes in this country, as compared with those of Germany and America; — these broad facts the two Arnolds, as inspectors of schools, were constantly laying before the proper authorities; and they undoubtedly had no small share in the work which was put into legal operation by their brother-in-law, then a member of Mr. Gladstone's first government. The act of Mr. Forster is now bearing fruit. An educated people have demanded and received a fuller share in the government of their country. The Reform Bill of 1832 was soon followed by state grants to education; Mr. Disraeli's act of 1867, conferring votes on a large number of citizens, was followed by the great educational law of 1870, and that act gave such a mighty impetus to popular education that other great political changes will soon follow, especially in Ireland, where the new voters will demand better education.

REV. RUFUS ANDERSON, D.D., LL.D.

The frontispiece which adorns this number is a fine steel engraving of him whom Dr. Wayland, the distinguished president of Brown University, characterized as "the wisest man in America."

Few great movements in any age could be considered of greater moment to the progress of the human race, grander, more noble, or more creditable to the hearts and the heads of the prime movers, than the great revival of the missionary spirit which made the early part of this century famous.

In 1808 the Andover Theological Seminary was established. Its first class was graduated in 1809. The next year, 1810, the spirit of missions, then thoroughly aroused, launched upon the world a great movement. In June of that year four young men, members of the graduating class in the Andover Seminary, — Judson, Nott, Newall, and Hall, — presented to the General Association of the Congregational Churches of Massachusetts a paper stating "that their minds had long been impressed with the duty and importance of personally attempting a mission to the heathen"; and they solicited the opinion and advice of the Association as to their duty, and as to the source to which they might look for support in their contemplated work. The subject was referred to a committee, which the next day reported, recommending "that there be instituted by this Association a Board of Commissioners for Foreign Missions."

Thus was inaugurated ina small beginning the immense work since carried forward by this noble Christian agency. That Board to-day supports nearly two hundred ordained missionaries, nearly as many native pastors, and between three hundred and fifty and four hundred native preachers and catechists. Its annual disbursements are more than half a million dollars. The whole number of laborers connected with its missions, by its last annual report, is 2,260. It has printed twenty million pages; it has now more than twenty thousand church members and thirty-three thousand pupils in its schools.

It was of this great missionary society that Dr. Anderson was for more than forty years secretary. The entire period of his connection with the board was from 1822, when he was twenty-six years of age, to his death in 1880, at the ripe old age of eighty-four years,—a period of fifty-eight years. During the larger part of this long period, Dr. Anderson occupied the important post of foreign secretary. But what is the foreign secretaryship of the American Board?

"It may be that very few have an adequate idea of the amount, the weight, the variety, and delicacy of labors and cares pertaining to the position, more particularly at the advanced period of Dr. Anderson's public life. The foreign secretary, by virtue of intimate relations to the home

department, can never wholly dissociate himself from any of the official agencies. In the way of sermons, addresses, and contributions to the periodical press, he must make his thoughts tell upon current public sentiment. Elaborate preparations of reports and special papers is demanded for annual meetings of the Board. Hundreds and hundreds of personal calls will be made upon him at his office every year. Even of domestic correspondence no inconsiderable share comes into his hands. The weekly average of letters now received at the rooms of the Board is from five hundred to a thousand, — letters ranging from a few lines to fifty pages; and the longer, the more sure are they to be designed for the foreign department."[1]

It must have been that he had a strong purpose and great faith in the cause that he had espoused, else he would not have had sufficient power to carry him through a long lifetime of such unwearied labors. He himself said, at the resignation of his office in 1875, "Never have I had stronger assurance than now of the ultimate triumph of the missionary cause. Its progress seems to me to be as certain as that of trade, or knowledge, or freedom of thought and action. With the world open to evangelical effort as it never was before, the truly evangelical churches will be less and less able to disregard the spiritually benighted nations."

Dr. Anderson was a giant among men. The high estimation in which he was held by his brethren and co-workers attests his greatness and his power. Dr. Thompson says of him:

"His eye was single, — an obvious demand of the secretariate. Outside schemes he had none. God called him to this; on the condition of singleness alone would the churches give full confidence. For this department of the Master's cause he read, wrote, and journeyed. All his strength, all his time, were given to it with continued concentration. To be genial is not the chief end of man. The highest function of an officer in command of an Atlantic steamer is not to play the agreeable with passengers, but to heed all signals, to look well to the chart, the life-boats, and everything that concerns the safety of his vessel and of those on board. His was a moral courage and a loyalty that appears in the fixed purpose never to turn to the right hand nor the left from his appointed path; nor along that path ever to shrink from known duty or waver in any exigency."

Dr. Eli Smith, the missionary, whose acquaintance with him was intimate, and who has been called "one of the ablest men the Board ever sent out," pronounced this judgment,—"He is a moral giant." The late Chief-Justice Chapman, of our Supreme Court, once wrote: "I regard Dr. Anderson as a very good and a very great man." At Siroor, in the Mahrathi, a native Christian, on beholding Dr. Anderson's fine, tall form and benignant face, exclaimed, "Just like Jesus Christ!"

Dr. Anderson was born in North Yarmouth, Maine, August 17, 1796. His father was a Congregational minister, whose grandfather had emigrated from Scotland about two hundred years ago to Londonderry, N. H. He

[1] From a "Commemorative Discourse," by Rev. A. C. Thompson, D.D.

graduated at Bowdoin College in the class of 1818, and at Andover Theological Seminary in 1822. He received the degree of Doctor of Divinity from Dartmouth College in 1838, and of Doctor of Laws from Bowdoin College, his Alma Mater, in 1866. He died in Boston, May 30, 1880. The funeral services were held in the Eliot Church, June 3. Addresses were made by Rev. Dr. A. C. Thompson, senior pastor of the Eliot Church, and Rev. Dr. N. G. Clarke, corresponding secretary of the American Board. His remains rest in the Forest Hills Cemetery.

The example of such a man, who, himself highly endowed with a clear head and a warm heart, exhibits throughout a long life a singleness of purpose and a consistency and consecration to a given cause, especially where that cause embodies the noble principle of carrying out the Divine Savior's last command, "Go ye into all the world and preach the Gospel to every creature";—such an example is a national blessing; and "He being dead, yet speaketh."

CIRCULAR-LETTER UPON RECESS OR NO-RECESS IN SCHOOLS.

A committee of the National Council of Education made to that body at its meeting held in Madison, Wis., July 10, 1884, a report upon "Recess or No recess in Schools." After discussion, the subject was referred back to the committee for further investigation, to be followed by another report in July, 1885. The subject is of vital importance, touching as it does the welfare of pupils in the schools of the country; hence the investigation assumes the widest scope. The committee seeks facts of experience, as well as theories based upon experience; any fact that bears directly or indirectly upon the subject will be very acceptable.

The scope of the investigation is indicated by the following questions, to which answers are solicited from superintendents of schools, principals, teachers, school officers, physicians, professional men of all classes, and parents. The first nine questions are directed especially to superintendents and teachers; the rest of the questions are also directed to any persons who can give any information upon the points raised. The name and address of persons, particularly physicians who have given attention to this subject, will be valuable aid; copies of reports or papers that discuss this subject are solicited. Send all communications to the sub-committee named below.

QUESTIONS.

1. Is the no-recess plan in operation in the schools under your supervision or instruction?

2. If it is not, has any proposition been made toward the establishment of the plan, and what arguments prevailed against the proposition to introduce it?

3. Have you returned to the recess plan after a fair trial of the no-recess plan; and if so, what causes led to the change?

4. What condition existed in and about your schools that prompted the officials to abolish the recess and adopt the no-recess plan, and with whom did the proposition originate to establish in your schools the no-recess plan,—with the superintendents and teachers, with the board of education, or with the patrons?

5. How many hours of continuous confinement within the school-room are required daily, A. M. and P. M., of pupils in the several grades under your no-recess plan?

6. What are the precise duties and privileges of pupils that have been substituted for those of the recess in the several grades of your school?

7. Are physical exercises, as a practical means of retaining and securing

health in the school-room, an equivalent under your no-recess plans for the exercise afforded to pupils by an out-door recess?

8. What effect has the no-recess plan upon the management and government of your schools, especially in the matter of the pupils' habits in conduct?

9. Is the no-recess plan extending among the schools in your vicinity?

10. How is the health of pupils effected in the following particulars by the no-recess plan, so far as your observation and experience extend?

NOTE.—State explicitly the nature and character of the examinations instituted to arrive at the facts and opinions which you recount in your answer to the questions asked under (*a*) to (*e*) below. Special inquiry is made about those children that have inherited or have developed weaknesses in the points enumerated.

(*a.*) Does or does not the no-recess plan affect the duties and privileges of pupils in such a way as to develop or aggregate in any of them nervous irritation, — revealed by a tendency to, or an absence from, cerebral pains, inability to think or to act or to remember, weariness, coldness of extremities, want of blood in the brain, irritation of the sympathetic system of nerves,—owing to continuous sedentary confinement in the school-room, with its heated and perhaps vitiated air?

(*b.*) Does or does not the no-recess plan affect the pelvic organs, — revealed by a tendency to develop or aggregate irritation and diseases of the kidneys, bladder, rectum, or by blood-poisoning from retention of urine, — owing to the failure of pupils to comply regularly with the physical necessities under which they rest, to a lack of those physical exercises which tend to keep in a healthy condition the organs enumerated, and to the continuous confinement upon the seats in the school-room?

(*c.*) Does or does not the no-recess plan affect the eye-sight, — revealed by developing or aggregating enfeebled powers of those organs, owing to deficiency of out-door exposure?

(*d.*) Does or does not the no-recess plan affect the nasal passages and lungs, — revealed by developing or aggraxating catarrh or irritation of the lungs, owing to too continuous exposure to the dust, heat, and air of the school-room?

(*e.*) How do the physical exercises substituted by the no-recess plan for those of the recess affect, relatively, the rapidity of the pulse of pupils when it is compared to the rapidity developed in the exercises of the out-door recess?

Very respectfully submitted,

J. H. HOOSE,
Sub-Committee on Hygiene in Education.

State Normal School, Cortland, Cortland Co., N. Y.

FOREIGN NOTES.

TECHNICAL INSTRUCTION.

In Great Britain.—The need of increased provision for technical instruction in Great Britain is now fully admitted; the question as to what part elementary schools shall take in the work is at about the same stage as in the United States. The latest utterance on the subject having any special weight comes from the committee of the London School Board appointed two years ago to consider and advise how far the Board may facilitate technical education, or co-operate with those bodies that are carrying it on.

The committee commenced their deliberations by seeking information from gentlemen who are interested in and have studied the subject; namely, Dr. Silvanus P. Thompson, Professor of Natural Philosophy at University College, Bristol; H. Trueman Wood, Secretary of the Society of Arts; Philip Magnus, Director and Secretary of the City and Guilds of London Institute and one of the members of the Royal Commission on Technical Education. Further information was sought from the clerks of the Glasgow, Manchester, and Sheffield School Boards, respecting the steps taken by these Boards to provide technical instruction for children, and also from the school officials of foreign cities in which similar provision has been made. As the result of inquiries and deliberations extending over nearly two years, the committee have submitted a report in which they present the following conclusions: "After considering in all its bearings the whole question of the introduction of technical education and training into the schools of the Board, the committee are of opinion that there is at present too little instruction for boys which is calculated to train and exercise the hand and fingers, so as to fit lads more efficiently for situations where skilled manual labor is required. In this respect boys are worse off than girls. It is only in the drawing-lesson that the boys receive any training of the hand, whilst girls obtain it in the needlework and cookery lessons as well. The committee do not consider it desirable to attempt to teach any special trade or handicraft in the schools of the Board; but they are of opinion that in boys' departments greater attention should be paid to the teaching of 'elementary science' and to free-hand drawings from models; that mechanical drawing and modelling from clay should be introduced; that the peripatetic plan of teaching mechanics should be tried as an experiment in some district of London; and that, as an experiment, arrangements should be made for the establishment of a class for the elementary instruction of boys in the use of tools as applied to working in wood, the attendance being voluntary and out of school-hours." The recommendations of the committee were in accordance with these conclusions.

The City Companies. — The part that the city companies have been, and are taking, in the development of technical instruction in Great Britian is likely to give the readers of EDUCATION some interest in the report of the commission appointed to find out the amount and disposition of the companies' funds. It appears that the income of the companies is upwards of £700,000 a year, of which £200,000 is trust and £500,000, at present, private income; in other words, the companies are richer than Oxford and Cambridge put together. The fund at the disposal of the City and Guild's Institute for the Advancement of technical education for the year ending Dec. 31, 1883, was £124,190, 7*s.*, 4*d.* The total attendance upon the Finsbury College, as reported in January of the present year, was in the evening classes 621, and in the day classes 100 students. The greater portion of both classes are artisans. At the May examinations 3,635 candidates presented themselves, and 1,829 passed; as against 2,397 examined, and 1,498 passed, in 1883. The increase in the number of failures is attributed to many causes, prominent among which are the want of skill in *drawing*, and of previous science-teaching on the part of the candidates. In many subjects, too, there is still experienced the serious want of competent teachers, which it is hoped will to some extent be remedied by the Central Institution, one purpose of which is the training of technical teachers. Classes were organized and work begun in the Central Institution in January.

On the Continent. — Forty years ago Liebig brought prominently before the German people the relation of science and art to industry. "The great desideratum of the present age," he said, "is practically manifested in the establishment of schools in which the natural sciences occupy the most prominent place in the course of instruction. Through them the resources, the wealth, and the strength of empires will incalculably increase." In the confidence of this prediction, Germany has continued establishing schools of this class with results that are felt throughout Europe. The latest enterprise of the kind is the Academy for Technical Education in Berlin, whose magnificent buildings were opened by the Emperor the second day of last November. The amount already expended upon this academy exceeds one and a half million dollars. In view of such lavish expenditure, it is not surprising that a member of the French Chamber of Deputies should recently have warned that body that French industry is threatened by technical education beyond the Rhine and the Rhone.

UNIVERSITY NOTES.

A Teaching University for London. — The proposal for a teaching university in London calls to mind that earlier movement which, beginning in 1825 with a letter in the *Times*, from the pen of the poet Campbell, resulted in the founding of the University of London in 1826. In 1836 the institution consented to a change of name; it then became University College, London, transferring its claim to confer degrees to a separate institution, the

University of London, differing from the original in that it was empowered to examine, but not to teach. What this examining body has accomplished is well known. Under its benign influence all classes and denominations of society and both sexes have been equally encouraged in the pursuit of a regular and liberal course of education; but for obvious reasons the institution does not exercise an influence equal to that of a teaching university.

An association of influential men was formed last May to promote the better organization of university teaching in London, and a committee was appointed to draw up a plan for the Teaching University in accordance with the objects of the Association. The report of the committee was submitted in December, on which occasion Lord Reary presided.

In opening the proceedings, Lord Reary thus summed up the material resources which London offered for the proposed institution: The city was, he said, in an entirely exceptional position. It had the very best professors, lecturers, and examiners; it had also the very best science and art collections and libraries, which were necessary to a first-rate university; and if an ideal university was a university having the best collections and the best teachers, then in London there was everything which went to make such an institution. "The movement represented by the Association did not," he said, "arise from the outside world; it was not the scheme of some visionary educational reformer; it arose from a want felt by those who were themselves engaged in the work of tuition, and who, as such, were the best judges of their wants. Their object was to endow London with an institution that would promote scientific inquiry, classical knowledge, medical science and research, and so strengthen traditions that would shed a lustre over the country." What the exact outcome of the movement may be is uncertain, but it seems to promise at least the federation of the scattered educational bodies in London into faculties.

Oxford.—The first annual statement of the income and expenditure of the Common University Fund has been recently published. This fund is the principal financial outcome of the last University Commission, and is made up chiefly from funds diverted from the college revenues. The report covers the year 1884. The income of £3,000 was made up as follows: £2,642, 14*s.*, 6*d.*, from the colleges; £212, 14*s.*, 11*d.*, paid under certain statute requirements, and £144, 10*s.*, 4*d.*, from the University chest. The fund has been applied to the payment of a reader in Latin, one in Greek, one in Ancient History, each £292; one in Anthropology, £195; one in Rabbinical Literature, one term, £65; one term in Foreign History and English Law, £97 each. Other expenses amounting to £495 have been incurred, leaving a balance of £1,721.

Cambridge. — A scheme for additional subjects of the previous examination is under discussion. The syndicate now propose that all candidates for honors in any tripos shall, before admission to the examination, be required to pass an examination in English.

Brussels. — The Free University of Brussels celebrated its fiftieth anniversary last year (1884). From the historic notice prepared by Mr. Vanderkindere for that occasion, it appears that the University has been steadily increasing in resources and attendance until it is now in its most flourishing state. Thus the number of students, which was 96 in 1834, and 686 in 1875, was 1,686 in 1884. The library contains more than 62,000 volumes and takes above 500 periodicals. The increase of funds is in proportion to the advance in other respects. The city of Brussels proposes also to reconstruct a large portion of the ancient building on a scale to correspond with the position of the University and with the spirit of the present time.

Superior Education in France.—As set forth by Albert Dumont in a paper read at the London Conference, the establishment of higher education in France are, (1) The Faculties which formed part of the old universities; viz., theology, law, medicine, science, philosophy; the high schools of pharmacy, *Ecoles de plein* exercise (or complete studies) and preparatory schools, which teach medicine and pharmacy; (2) establishments devoted to science and to higher intellectual culture, besides the Faculties, such as the Museum, the College de France, etc.; (3) special schools, such as the *Ecole Normale supérieure.*

The French Faculties of Theology have no regular students. For the first half of 1884 the number of law students was 5,849; the number of medical students, 6,008; and the number of pharmacy students 1,352. The number of students devoting themselves to science and philosophy in the first half of 1883–84 was about 3,900. In Germany the corresponding number was 8,941, so that France, which is not inferior to Germany in respect to law and medical students, is far behind when the students of philosophy are taken into account. The number of professors, lecturers, *agrégés*, etc., in the higher establishments of France is 1,540. The estimates for the Faculties amounted in 1884 to 11,552,000 francs ($2,229,536), not including 928,000 francs, contributed by the towns for the preparatory schools of pharmacy, making altogether 12,470,000 francs ($2,406,710).

The budget of the chief scientific and literary establishments and special schools; *i. e.*, those placed by Mr. Dumont in the second and third classes, amounted to 3,634,748 francs ($701,506,36).

EDUCATIONAL CONGRESSES AND CONFERENCES.

Congress of School Directors at Bonn. — In October last a Congress of directors of secondary schools was held in Bonn. Four subjects had been previously given out for discussion on this occasion. The first question considered was: In what branches and what classes may the work required of scholars out of school be diminished without serious loss? Already some diminution of work has been effected. Thus the number of compositions in German and Latin has been reduced. Vacation tasks and tasks given for punishment have been abolished. Nor can the teachers require maps

to be drawn at home, nor the preparation or assigned topics in history, natural science, etc. The second and third questions had reference to the place which Greek and Latin should have in the secondary schools. The last subject discussed was that of the preparation of tables of the principal dates in history for the use of the schools. These are necessary to assist the pupils in preparing for the historical part of the final examination. About four hundred dates, it was thought, would include all that it is important to fix in the minds of pupils.

Congress of the Scotch Educational Institute — The Scotch Educational Institute held an important Congress at Ayr in January. There was a large attendance of delegates, and unusual interest manifested in the proceedings by the general public. The code and the education that it fosters was freely discussed and criticised, the prevailing opinion seeming to be that the system is not in harmony with the natural laws of human development; that it tended to produce a dead uniformity, and ignored too largely the conditions of health and physical vigor.

The present status of secondary schools in Scotland was the chief theme before the Congress. It was agreed that the number of these should be increased; that their province should be more distinctly defined, and that they should be guarded from the encroachments of elementary schools on the one hand, and of the universities on the other. The necessity of State aid for secondary schools was admitted.

Mr. J. D. Graham, M.A., of the Ayr Grammar School, presented an interesting paper on the future organization of the higher-class schools. Since 1880 the Scotch Educational Department has been endeavoring to secure, if possible, a graded system of schools in each district. Since 1872, the date of the Scotch Education Act, there have sprung up throughout the country, but chiefly in the burghs, a class of schools which supplies the wants of ex-standard scholars. These schools are distinct in aim and character from the purely secondary schools of the district, and also from the higher Board schools under government inspection, which, placed in populous districts, are, from the age of the pupils and their stay at school, secondary schools for those districts. There are thus two classes of higher Board schools, — those in which the pupils remain to fourteen or fifteen years of age, and those in which the pupils stay to sixteen years and upwards. Mr. Graham urged for the second class a distinctly classical direction, and for the first a decided predominance of subjects that would form an excellent basis of after-technical instruction. Here, he thought, mathematics, science, drawing, and French should occupy a first place, and Latin a secondary place. He would not have Greek introduced at all. The paper produced a deep impression, but its discussion was deferred till the next Congress.

Irish Teachers in Conference. — The Irish Teachers' Congress, which was held in Dublin the last week in December, brings prominently before the public the grievances under which those teachers have so long suffered. These are, salaries far below those of the English teachers; want of pen-

sions, and the miserable condition of the greater part of the residences furnished by government. As in preceding years, the Congress was chiefly occupied with measures looking to the redress of these grievances. The necessity of a compulsory law was also insisted upon.

Congress of Swiss Teachers. — The 15th Congress of the German Swiss Teachers was held at Basle in October. Over a thousand teachers and school officers, representing every grade of instruction, were present, and the greatest harmony and enthusiasm was manifested.

Although this was a Congress of the German Swiss Teachers, delegates were also present from the French Swiss. France was the only foreign country officially represented. The Councilor of State, charged with the care of public instruction in Basle, gave a very interesting statement of the system there established. The organization of primary instruction is truly republican. All the schools are free, and attendance is required of all children from six to ten years of age. All denominational schools have been suppressed, and Catholic and Protestant children sit side by side in the same school and receive the same instruction. Large sums have been spent upon the school-houses; but this has not been wasted upon showy exteriors. On the contrary, no effort has been spared to make the interior correspond to all hygienic requirements and educational needs.

The claims of natural science for a larger place in elementary courses were very earnestly advocated before the Congress. The best means of introducing gymnastics into primary schools and of securing practical results from the training was also thoroughly discussed. It was suggested that this could only be accomplished through the agency of a federal institute of gymnastics, in which professors should be trained for service in the normal schools.

The subject of "National Education" was presented by Mr. Christinger, school inspector. National education, he held, should include physical training to develop grace and strength of body; industrial and professional training; moral training for the development of character, and training in patriotism. This last he believed could be accomplished by the study of history and the biographies of the best men of the nation. As a means of aiding the work, he would have the walls of school-rooms hung with historical pictures and mottoes expressing patriotic sentiments. His views were received with every mark of approbation.

Pedagogic Museum at Genoa.—The Pedagogic Museum organized at Genoa but three years since is already attracting attention in neighboring countries. Mr. Le Bourgeois, Inspector-general of Primary Instruction in France, was sent in the latter part of 1884 to examine and report upon its collections and general conduct. He found very complete collections of all the material required to initiate teachers into the intuitive processes applicable to the different branches of elementary instruction. This material is systematically arranged, and the director of the *Museum Innocente Ghini* uses every means of familiarizing teachers with the nature and use of the

same. To this end, he has made the museum a centre of experiment, whither teachers from the surrounding neighborhood come, in district groups, once a month, to be trained under his immediate direction.

EDUCATION IN SERVIA. — Servia, the youngest kingdom in Europe, has an area of 18,800 square miles and a population of 1,820,000, according to the census of 1882. It has been free from Turkey since 1878, but the fact that it was so long a dependence of that empire makes the present condition of education therein seem the more remarkable.

In 1834 there was not a primary school in the country outside of the chief towns, and in these altogether not more than twenty-five. In 1884 scarcely a village is without its primary school. Boys and girls enter these schools at the age of seven years and remain in them four years. So far, education is compulsory. At the age of 12 a Serb boy may, if his parents desire, enter a secondary school, where he remains seven years. These secondary schools are normal schools for intending teachers, real schools, or gymnasia. At 18 years of age a Serb can, on passing the required examination, become a student of the Great School at Belgrave. In this school are faculties for science, for technical instruction, for philosophy and law, the instruction in all being gratuitous. There is no medical faculty. The lectures of the school are given in a large building valued at about $250,000, the gift of a Serb merchant. Little attention is given to the education of girls above the most elementary stage. In Belgrade, alone, have secondary schools for girls been established.

THE LATE CRISIS IN BELGIUM. — The late reaction in Belgium has an interest for us apart from its political bearing. The system of elementary instruction established by the Liberals gave free scope to what are termed modern ideas. The literary side was fully balanced by the practical. Thus, drawing, inventive design, modeling in card-board, wood, and clay, the use of weights and measures and of surveyors' instruments, the study of native products and of local industries, were made prominent. The results had already exceeded expectation, as shown in the remarkable representation made by Belgium in the recent Health Exhibit. Just at the moment when other nations are beginning to consider how to incorporate what was there seen in their own practice, the Belgium system received a disastrous blow, and there is now every likelihood of a return to the traditional methods of instruction imposed by the Church.

This much, however, must be admitted, — the new school law makes it easy for communes having a majority of Liberals to carry out their ideas, and possible for a determined minority of not less than twenty heads of families in any commune to resist the undue encroachments of the Church. Possibly when the excitement subsides it will be found that the schools established by the Liberals will be maintained, excepting in rural districts that are strongly Catholic. In these a retrograde movement appears unavoidable.

ELEMENTARY EDUCATION IN JAPAN. — The educational system of Japan was fully and admirably presented at the late exhibit in London. To facilitate the understanding of the section, the government published a hand-book in English which comprised the most exhaustive account of modern Japanese education that has ever been set forth in any European tongue. The Educational Department, it appears, is one of the ten departments, and the Minister of Education has control over all affairs connected with education in the country. The Minister has organized an academy to inquire into matters concerning education, and to discuss subjects connected with this science and art.

Attendance upon elementary schools is compulsory. The elementary course is divided into three grades; viz., lower, intermediate, and higher. The lower course comprises the elements of morals, reading, writing, arithmetic; also singing and gymnastics. The intermediate course provides for the continuation of the branches of the lower, and adds the elements of geography, history, drawing, natural history, physics, and sewing for female students. The higher grade course comprises, in addition to the continuation of the foregoing, the elements of chemistry, geometry, physiology, and political economy, or for female students domestic economy. The length of the course of study is three years in each of the lower and intermediate grades and two years in the higher. The courses of study may be modified to suit the requirements of districts; but in no case are morals, reading, writing, or arithmetic to be omitted.

Teachers of elementary schools must be upward of 18 years of age, and must possess either the certificate of a normal school, or a teacher's license, or a certificate granted by the governor of Fu.

U. S. Grant

EDUCATION.

No. V.—MAY, 1885.

EDUCATIONAL NEEDS OF RURAL COMMUNITIES.[1]

[1] Delivered at the International Educational Congress, New Orleans, February, 1885.